ATHLETIC JOURNAL

VOL. XXXV No. 6 February, 1955

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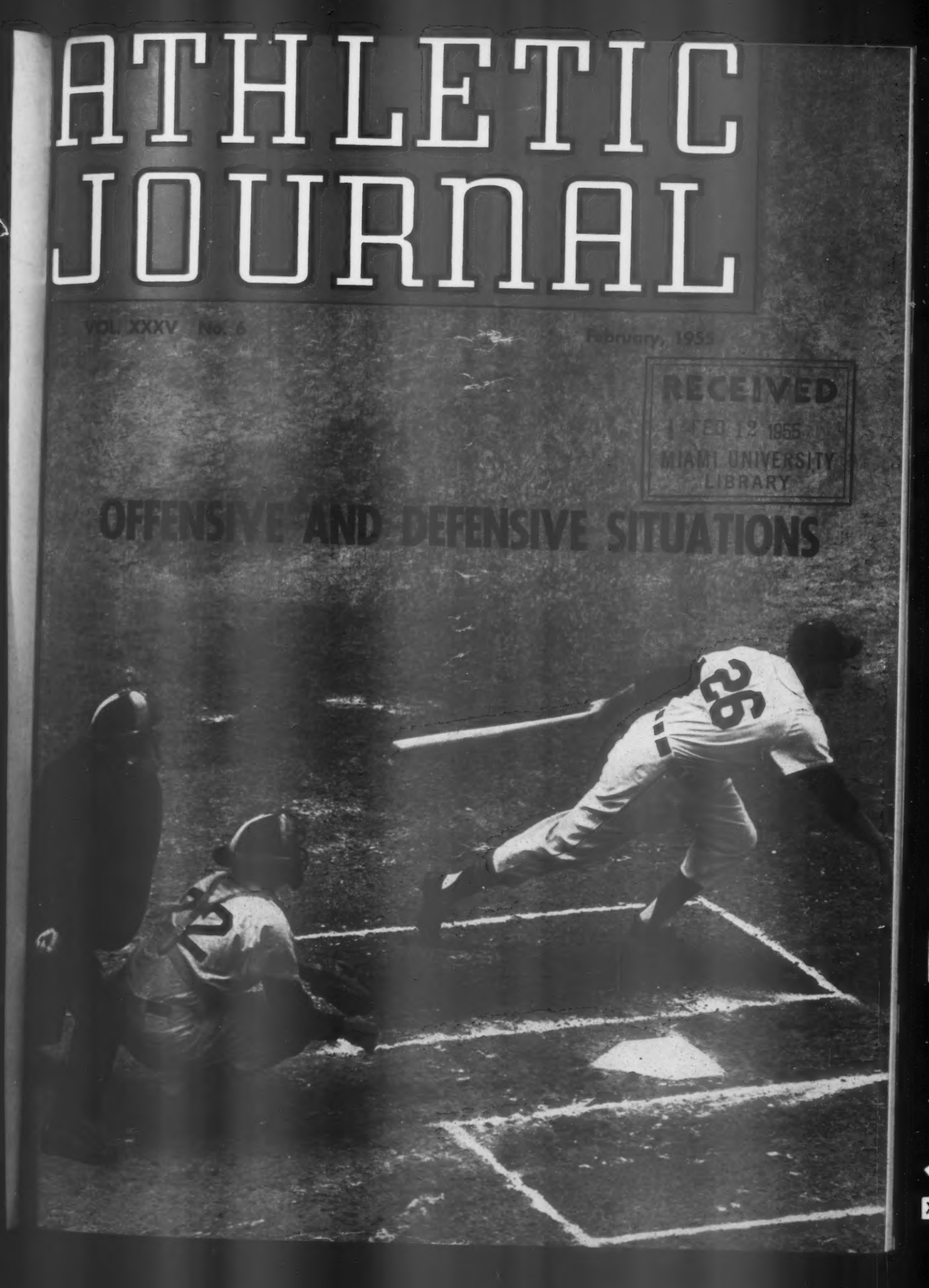

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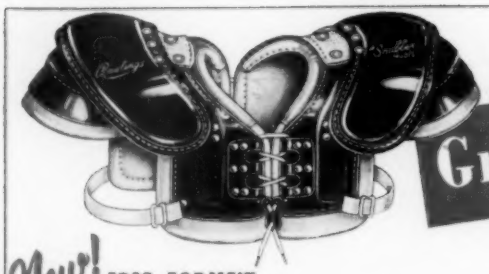

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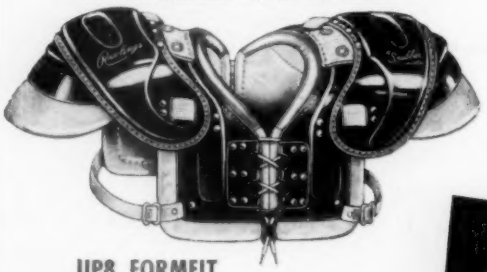

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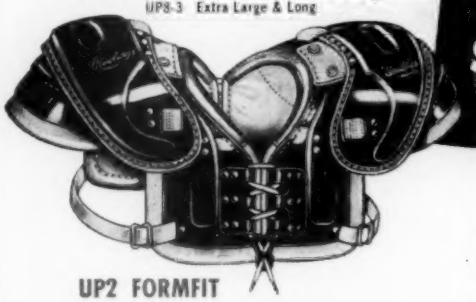

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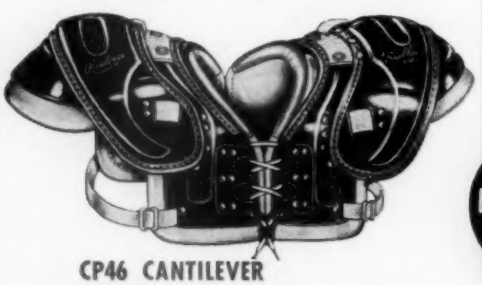

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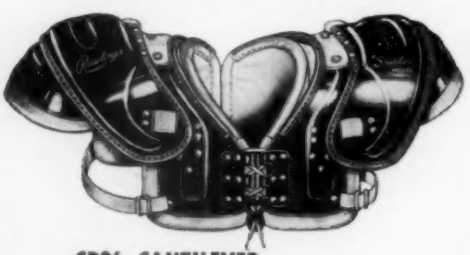

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Nation-Wide Amateur Athletics

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FRONT COVER ILLUSTRATION

The catcher, in most instances, is the defensive quarterback and the batter represents the offense. Thus, the combination graphically portrays "Offensive and Defensive Situations." The batter is Harvey Kuenn of the Tigers and the catcher is Sammy White of the Red Sox. The discussion of "Offensive and Defensive Situations" will be found on pages 6 and 7. *Photo courtesy Wilson Sporting Goods Co.*

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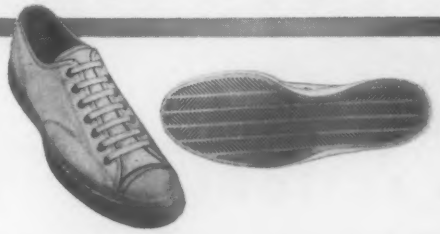

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from here and there

ALTHOUGH some coaches disagree as to the value of booster clubs, if handled properly, they can be of value to the school. A case in point is The Wildcat Club at Abilene Christian College. The club is financing the construction of the new nine-lane curbed track for Oliver Jackon's track team. The track will have six inches of base cinders plus three inches of fine topping cinders . . . When Frank McGuire, head basketball coach at North Carolina, was starring as an undergraduate at St. John's in New York, his coach was Buck Freeman. Buck Freeman is now helping his former star by coaching the freshmen at North Carolina . . . Fendley Collins, Michigan State wrestling coach, has an enviable position, in that his record can never be compared against the record of a predecessor. This all comes about due to the fact that he is the only man ever to coach the sport for Michigan State. He was appointed in 1929 when wrestling was added to the program and has held the position ever since . . . Leslie Casey, head swimming coach at North Carolina and his brother, Willis Casey, head swimming coach at North Carolina State, served together as co-coaches at North Carolina in 1946. Is this the first time that brothers have served as co-coaches of a sport? . . . Michigan State has 23 sports in its intramural program. In case you wonder where they can find that many different sports, weight-lifting and "Turkey Trot" are listed as two of the activities. The latter is a mile run over an obstacle course. The winner receives, appropriately enough, a live turkey, while the last runner to finish is presented with a goose egg.

• • •

NOT only has Iowa State won every dual swimming meet with conference opponents since 1941 but also all but three of the Big Seven meet records are held by its swimmers . . . Bill Strannigan, the Iowa State basketball coach, was born in Scotland but grew up in Wyoming. In three years of varsity competition he was selected all-conference each year . . . In his 28 years of coaching basketball, "Ozzie" Cowles has been at six colleges and one high school. At Dartmouth in eight seasons his teams won seven conference championships. Cowles' 1942 Dartmouth team went to the finals of the NCAA tournament at Kansas City. It was Howie Dallmar, former Pennsylvania coach and now serving his first year as head coach at Stanford, who was the star of the game and earned Everett Dean's Stanford team the national championship . . . Michigan Tech has 10 different sports on its intercollegiate athletic program, offers service physical education courses in 21 sports or activities, and yet does not have baseball. The nearest approach is softball on the twelve sport intramural program . . . Having witnessed the interest evinced in face guards and face masks of all types by coaches attending the American Football Coaches Association Convention, we predict that in a very few years such equipment will be standard. Many big name college coaches stated they were planning to outfit their entire squads with such devices . . . Each year in this column we have reported on the number of tie football games in the various high school leagues in Kansas. This past season only 19 of 573 games ended in ties. This is a percentage of 3.2 and is a drop from last year's percentage of 3.5. The highest percentage of tie games was 5.6 per cent for the 1952 season. Over a five-year period only 90 or 4.15 per cent of 2166 games played ended in ties. This is figured for league games, supposedly the closest type of competition . . . Johnny Vaught, Mississippi's coach, has had experience with practically every conceivable type of offense. He became acquainted with the single wing, double wing, and spread formations as a player under the late Francis Schmidt at T.C.U. He assisted "Bear" Wolf with his double wing at North Caro-

(Continued on page 30)

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Offensive

IN any baseball game opportunities for offensive strategy are an important factor. Situations that lead to offensive maneuvers are apt to arise suddenly. The proper handling of these situations is left to the discretion of the coach or manager. Generally, the latter's decisions are dictated by his confidence in the team personnel. This article will be devoted to a discussion of situations which are considered most necessary to the success of amateur, high school, and college teams.

Hit and Run

The hit and run play is employed to the best advantage with one out and occasionally with no one out. It is designed to advance a runner from first base to third base when there are less than two outs. The position of the offense is strengthened by increasing its possibilities of scoring through means other than a base hit. A sacrifice fly, squeeze play, steal of home, wild pitch or a passed ball could be employed. Also, the defense is committed either to play in and give the offense a better chance for a base hit, or play back and give up the run. The hit and run is also used to prevent the double play. It helps the slow runner on first base. The psychological effect of the hit and run on the morale of the defense cannot be minimized. Every team at the high school and college level should have at least one or two players who are capable of working the hit and run with some measure of success. The best times to use the hit and run play are when the count is three strikes and one ball or two strikes and no balls.

Run and Hit

This offensive maneuver differs from the hit and run in that the batter hits straight away instead of hitting to right field. In order to use the run and hit effectively it is necessary that the runner on first base be fast, and he should figure on stealing second base in case the ball is not hit by the batter. This maneuver is used quite often when there is a count of three balls and two strikes on the batter. Many of its values are similar to the hit and run. However, the batter need not be a good right field hitter. The best time to use the run and hit presents itself when the batter is ahead of the pitcher in the ball and strike count.

Fake Bunt and Hit

Occasionally, in a bunt situation, the defense presses the batter so closely that the possibility of success is almost negligible. When this type of defense is presented, it is best to have the batter fake a bunt and hit the ball. The batter should try to pull the ball because in all bunt situations the defensive third baseman and the first baseman are both playing in close or coming in close to the batter for the bunt. A good fake by the batter may also pull the second baseman over toward first base, thus putting him out of position. In this situation the batter should concentrate on just meeting the ball and hitting on the ground if it is at all possible. In this situation a ground ball double play is completed very seldom. The fake bunt and hit can be employed to the best advantage early in the game or when the score is tied in the latter stages of a game.

The Sacrifice Bunt

On the sacrifice bunt, with a runner on first base only, and no one out, the best place to bunt is usually toward the first base side because the first baseman has to hold the runner at first, and will not be playing in on the grass. Usually, the sacrifice bunt is used in the late stages of a game when a run is needed to tie or win. As a rule, a team will not sacrifice bunt when it is two or more runs behind and has a runner on first base.

With runners on first and second and no one out, the best place to bunt is toward third base. This bunt should be hit fairly hard in order to prevent the pitcher from fielding it. Thus, the third baseman has to field the ball, leaving third base unguarded for the incoming baserunner. This bunt can be used almost any time during the game, providing the offensive team is not more than two runs behind in the score.

On the sacrifice bunt, with a runner on second base only and no one out, the bunt should be hit fairly hard to the third baseman in order to make him field the ball and leave third base unguarded for the incoming baserunner. This bunt is usually attempted in the late stages of the game when the offensive team needs one run to tie or win.

The Squeeze Play

There are two types of squeeze

(Continued on page 52)

Photograph of baseball through the courtesy of Wilson Sporting Goods Co.

Defensive

FROM the defensive standpoint, play situations can be classified into three groups: batting, bunting, and baserunning.

Defense Against Batting Situations

Baserunner on First Base—A Single to the Outfield

With a runner on first base and a single hit to the outfield, the outfielder should throw the ball on a line to third base so that it will come in to that base on one bounce. In this situation the shortstop makes a play on the batted ball whenever possible and then acts as a cut-off man for the third baseman. After making a play on the ball, when necessary, the second baseman covers second base. The pitcher backs up third base.

Runner on First Base—Extra Base Hit

On extra base hits to the outfield, with a runner on first base, the shortstop acts as a relay man on balls hit to direct center field and to the left field side of center field. The second baseman acts as a relay man on balls hit to right center field and to right field. On all extra base hits over or between the outfielders, the first baseman is a cut-off man for the catcher.

In relaying the ball back to the relay man, some coaches prefer using a three-man system rather than the two-man system which relies on the throwing strength and accuracy of one outfielder and the relay man. In the three-man system the outfielder who is closest to the ball when it is hit calls, "I'll get it," as he chases the ball. The outfielder nearest him lines up with the base where the play most likely will take place, and about 100 feet from where the outfielder will pick up the ball. Then the latter throws to his outfielding teammate who whirls and throws to either the relay man or to a base.

Setting Up for the Double Play

With a runner on first, runners on first and second, or on first and third, and with one out, the shortstop and second baseman should take approximately two steps in toward home plate from their normal positions and also about two steps over toward second base. Thus, both players are stationed closer to second base for the double play, and at the same time they are kept close enough to their normal positions to field ground balls.

Runner on Second Base, or Second Base and Third Base—Single to the Outfield

With a runner on second or with runners on second and third, if a single is hit to the outfield, the outfielder tries, whenever possible, for the baserunner who is going to score. We know of two cut-off systems that can be used in these situations.

Cut-off system No. 1: Use the first baseman for all cut-offs on extra base hits, and on singles to right field or center field, when there is a baserunner in scoring position. In this system the third baseman is a cut-off man on singles to left field and to left center field when there is a baserunner on second base. The shortstop goes over to cover third base.

Cut-off system No. 2: When there is a backstop close to and over home plate, it is permissible and feasible to use the pitcher as a cut-off man on all singles to the outfield with a runner on second base.

With runners on first and third and a single hit to the outfield, the runner on third base will undoubtedly score. Therefore, the defense should play as if there were a runner on first base only.

Runners on First Base and Second Base—Single to the Outfield

When there are runners on first and second and a single is hit to the outfield, the outfielder who is fielding the ball must choose whether to play the lead runner at the plate or play the next runner. In this situation the shortstop again acts as a cut-off man for the third baseman, with the second baseman covering the keystone sack.

Runners on First and Second—Extra Base Hit

On extra base hits, with runners on first and second, the relay man or men must line up with the base where the last throw will probably go. In this situation all relay men should turn quickly and look back toward the baserunners just before they receive the throw from their teammate.

Runners on Second and Third—Single to the Outfield

With runners on second and third and a single hit to the outfield, either the first or third baseman acts as a cut-off man for the catcher, depending on whether the ball is hit to right or to left field. If cut-off system No. 2 is used, as described earlier in this article, the pitcher should then act as cut-off man for the catcher.

(Continued on following page)

Pitcher Covering First Base on Batted Ball

A simple defensive play situation which arises often is one which necessitates the pitcher covering first base on a ball hit deep to the first baseman, or to the right of the first baseman. Pitchers must learn to break automatically toward first base every time a ground ball is hit to their left side of the infield.

Runner on Third Base—Where to Play the Infield?

When there is a runner on third base with less than two outs, it is the coach's prerogative to decide whether the infield will play in to cut the run off at the plate, whether they will play halfway or whether they will play back and give up the run. The score, inning, and type of batter will influence the decision of the coach.

Defense Against Bunt Situations Runner on First Base—Sacrifice Bunt Situation

Under these conditions the third baseman plays in fairly close and comes very fast at the first indication of a bunt by the batter. The first baseman holds the base until the pitcher indicates delivery of the ball to the batter, and then he charges in toward the bunter to field the bunt. The shortstop and second baseman both move in forward and to their left a few steps to cover second base and first base respectively.

Sacrifice Bunt With Runners on First Base and Second Base

The important item here is to hold the runner on second base, as close to that base as possible, in order to have a good chance of forcing him at third base. When the runner on second base has a long lead, it is almost impossible to force him at the hot corner. In order to minimize his lead at second base the shortstop stations himself a step or two to the left field side of second base, and then breaks for his shortstop position as the pitch is made. The third baseman plays in at the inner edge of the grass. The pitcher must cover the third base side since the third baseman is needed at his base for the force-out there. The second baseman must be ready to cover first base since the first baseman sneaks in as close to the bunter as possible in order to be able to force out the runner who is going to third base.

Runner on Second Base—Sacrifice Bunt in Order

In this situation the defensive positions are the same as they are when there are runners on first and second. However, the defense must move faster and be sharper since the play at third base is a tag play and not a force play.

Defense Against the Squeeze

The best defense against the squeeze, in our opinion, is to have the pitcher work from the stretch position, or at least to have him alternate between the wind-up and the stretch at his own discretion. Many pitchers employ the short pump handle wind-up and it is fairly effective. However, use of this wind-up gives the baserunner a flying start.

Pick-Off Play—Pitcher to Shortstop

The defense must possess some type of defensive maneuver to keep a runner on second base from taking too long a lead. Some teams use a sign from the catcher as the signal for the pitcher to whirl and throw to the shortstop who is covering second base.

JIM SMILGOFF lives baseball nine months of the year and the other three turns to football. During the school year he coaches his Taft team, always a strong contender in Chicago baseball circles. During the summer he conducts his highly successful Midwest Baseball Camp. Smilgoff has served for a number of years as a scout for the Chicago Cubs and has prepared numerous articles for our pages.

Other teams use a count system whereby the shortstop gives a signal that he will cover second base on a certain count, which may be one or two, depending upon previous arrangements. The pitcher whirls and throws to second base on the next highest number, thus giving the shortstop a one count advantage or start in getting to second base ahead of the baserunner. Many teams use the daylight system whereby the shortstop or pitcher can inaugurate the play as long as daylight exists between the runner and the shortstop's right side after the lead is taken.

Other teams use an automatic system whereby the shortstop can break behind the runner any time he deems it advisable, and the pitcher may throw to the shortstop whenever he feels there is a chance to catch the baserunner.

Defense Against the Double Steal With Runners on First Base and Third Base

Here the major responsibility rests with the catcher since all defensive plays in this situation revolve around him. He must be a good actor in most instances in order to hide his intentions or misinform the baserunner regarding them.

On throws from the catcher to second base, with runners on first base and third base, most teams will use one player, usually the second baseman, to handle the throw. In this way only one position is vacated. Both the shortstop and the second baseman may vacate their positions if the catcher has called for a pitch-out.

With runners on first base and third base, many times the offensive team will automatically send the runner from first base toward second base on a straight steal. It is a disadvantage for the defense to let this runner get into a scoring position at second base without a challenge. However, there must be something with which to challenge the baserunner. Some tools for this challenge are as follows:

The look back and throw through by the catcher. As the runner on first base breaks for second base, the catcher, as soon as he receives the pitch, takes a quick but full look at the runner on third base while bringing the ball up over his shoulder to his throwing position. Then the receiver throws the ball through to second base for a tag play there. A good full look at the runner on third base will often send him back to that base.

The full bluff toward second base and throw to third base. With a fast, ambitious runner on third base it is oftentimes wise for the catcher to make a good full bluff throw action toward second base, and then straighten up and be ready to throw to third base for a pick-off play there. On this play the catcher must not look toward third base on the bluff. Secondly, the bluff must involve full throwing arm action. Catchers very often shorten their arm and body action on the bluff, thus making it look too artificial to the runner who is on third base.

The short throw to the second baseman in line with his position. This is an unusual play in which the catcher throws directly to the second baseman, who comes straight forward

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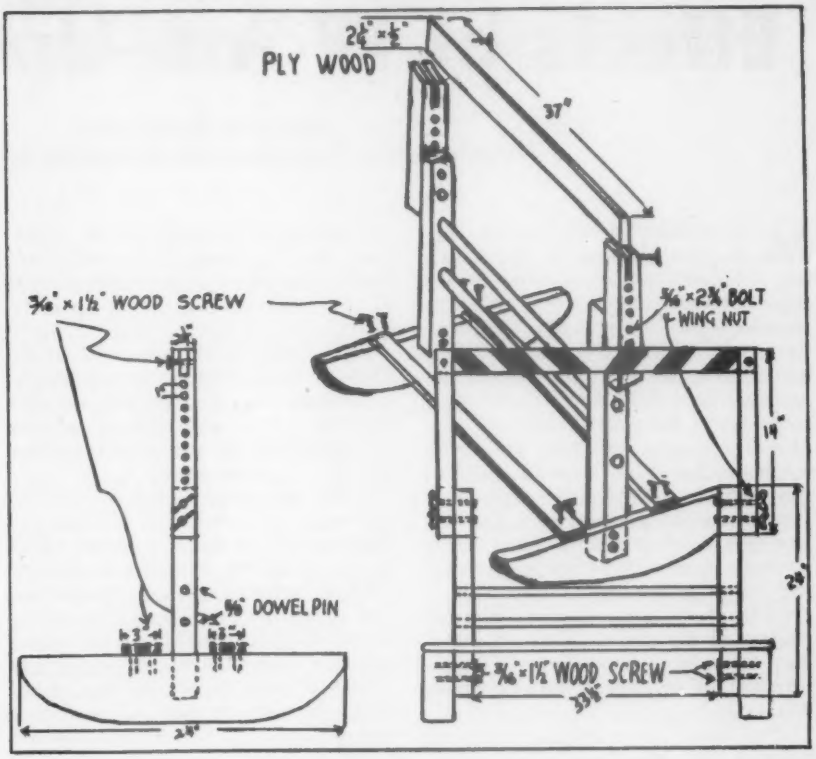
Hurdling Made Easier

By STEPHEN L CARUSO

Track Coach, Mt. Prospect Illinois, Junior High School



WHILE coaching track at the elementary and junior high school level, we found that the height and bulkiness of the conventional type rocker hurdle offered too great a challenge for the track-minded youngster. It is our feeling that many boys are discouraged from participating in hurdling because of this challenge. After studying this problem over the past four years, we discovered that by lowering the height of the hurdle and using a rocker base to allow more flexibility, the boys enjoyed hurdling much more. Interest can be increased if hurdling is made easier, especially during the early workouts in the gymnasium and out-of-doors. After using the conventional hurdle indoors for early practices and finding it unsatisfactory, we developed a hurdle of our own design.

With the co-operation of the industrial arts teacher and the boys who were out for track, we were able to construct five of the new type hurdles as a project in the woodworking class. By utilizing the one-inch scrap lumber in the shop and adding a few screws and bolts, five hurdles were built very economically. A lightweight wood of the white pine variety served our purpose perfectly. If a heavier wood such as oak were available, it could be used on the rocker. The bolts and screws used in the construction were purchased from the hardware store; however, it is likely that a suitable type bolt or screw could be found on the shelves of most school workshops.

Hurdle Construction

1. The crossbar is made from one-half inch plywood scrap lumber. The dimensions are two inches by 34 inches in size. One-quarter inch plywood will also serve the purpose if the one-half inch stock is not available. Use of solid wood stock is not advisable because of its splintering qualities. After the hurdle has been completed, the cross piece may be painted black and white.

2. The adjustable uprights, which are attached to the cross piece, are made from one-inch stock. The measurements are two inches by 14 inches. A one-half inch notch two inches deep should be cut at one end of each upright to allow the cross piece to fit snugly. The quarter-inch holes in the uprights are drilled one inch apart, starting from the bottom of the notch, to allow for height adjustment. Place the cross piece in the notch and secure it with a three-sixteenths by one and one-half inch wood screw. For this particular design, the top height is 30 inches.

3. The lower uprights are also made from one-inch scrap material. The measurements of the lower uprights are two inches by 24 inches. Two quarter-inch holes are drilled one inch apart; the first one is drilled one inch from the top. This piece may be bolted or screwed on to the rocker base depending upon the supply of bolts and screws available. Use either two quarter-inch bolts or two three-sixteenths by one and one-half inch wood screws. Make certain that the center of the rocker base is found before attaching the two parts together.

4. The rocker base is made from one-inch material. If some two-inch stock is available, it serves the purpose nicely because of the added

(Continued on page 46)

STEPHEN L. CARUSO graduated from Illinois State Normal University in 1950 where he served for his last two undergraduate years as athletic trainer. He coached for two years at Heyworth, Illinois and then moved to China Lake, California where he coached track. Caruso started at his present location this past fall.

Effects of Warm-Up on Speed

By LANE B. BLANK
Coach, Franklin Junior High School, Long Beach, California

MOST track and field coaches follow the practice of advocating an extensive warm-up activity for their runners immediately prior to practice or competition. Butler,[1] Conger,[2] and Bresnahan and Tuttle,[3] along with many other authorities on track and field athletics, strongly recommend the use of the warm-up. However, many athletes, and even some coaches have been inclined to question the use of this preliminary activity on the grounds that the athlete may be deprived of some of his strength when the time comes for the major performance of the day.

This study was directed toward determing the effect, if any, of a typical warm-up routine upon the performance of runners in popular sprint distances.

Procedure. The following terms are defined for the clarification of the discussion:

1. The warm-up routine consists of the activity in which an athlete participates prior to engaging in competitive or practice operations.

2. Under *minimum* or *cold* conditions a runner engages in little preliminary exercise or locomotion prior to the day's training or competitive effort.

3. Under *optimum* or *warm* conditions a runner engages in a prescribed pattern of exercise, running, and walking before participating in the principal portion of his track activity for the day.

Each individual engaged in the following exercises, in addition to walking and running, prior to being timed under optimum warm-up conditions: skeleton dance, woodchopper, trunk sideward bender, standing windmill, knee grasp, jog in place, jumping jack, hurdle split, sitting windmill, and bicycle.[4] The minimum warm-up routine consisted of a limited amount of walking plus the skeleton dance.

The study consisted of two portions. In the first portion 16 experienced track and field athletes were divided at random into two groups and timed daily in the 120-yard dash for 22 consecutive days. One group participated in the time trials following the optimum warm-up pattern, while the other group underwent similar recorded runs preceded by a minimum pattern of activity. The warm-up routines were interchanged on alternate days. In the second experiment 48 individuals with no prior track and field experience volunteered as subjects, but only 38 completed the research period. Again, the alternating pattern was employed, but the distance run was reduced to 100 yards.

Findings. The nature of the problem was such that the data obtained must be treated separately for each subject. From the recorded times in each portion of the study a statistical analysis was made and the following statistics were computed and tabulated for the optimum and minimum distributions of each subject: mean, standard deviation, and standard error of the mean. Pearson product-moment coefficients of correlation were calculated for each pair of distributions for the purpose of determining the relationship between the optimum and minimum times of each individual. From the standard errors and correlation coefficients the standard error of the difference of each pair of means was computed. The final step was the computation of the significance ratio for the performance of each subject.

As shown in Table 1, subjects in

(Continued on page 45)

[1] Guy Butler, *Athletics and Training* (New York: Charles Scribner's Sons, 1928), p. 20.
[2] Ray M. Conger, *Track and Field* (New York: A. S. Barnes and Company, Inc., 1939), p. 34.
[3] George T. Bresnahan and W. W. Tuttle, *Track and Field Athletics* (St. Louis: The C. V. Mosby Company, 1947), p. 45.
[4] *Ibid.*, pp. 483-86.

Table 1
MEAN TIMES AND DIFFERENCES BETWEEN MEANS, IN SECONDS, FOR EACH SUBJECT IN THE 130-YARD RUN

Subject number	Mean optimum	Mean minimum	Difference of means
1	13.97	14.67	0.70
2	14.72	15.36	0.64
3	14.18	14.88	0.70
4	13.96	14.64	0.68
5	12.97	13.69	0.72
6	13.74	14.39	0.65
7	13.92	14.58	0.66
8	14.17	14.86	0.69
9	13.87	14.56	0.69
10	13.35	14.05	0.70
11	13.55	14.29	0.74
12	13.58	14.25	0.67
13	14.10	14.83	0.73
14	13.55	14.30	0.75
15	13.61	14.42	0.81
16	14.81	15.52	0.71

Table 2
MEAN TIMES AND DIFFERENCES BETWEEN MEANS, IN SECONDS, FOR EACH SUBJECT IN THE 100-YARD RUN

Subject number*	Mean optimum	Mean minimum	Difference of means
1	11.99	12.81	0.82
2	11.98	12.63	0.65
3	12.77	13.34	0.57
4	11.66	12.39	0.73
5	11.94	12.74	0.80
6	11.64	12.43	0.79
8	12.32	12.86	0.54
9	13.19	13.58	0.39
11	11.75	12.22	0.47
12	12.68	13.54	0.66
13	11.76	12.53	0.77
15	12.33	12.80	0.47
16	11.45	12.22	0.77

* Subjects 7, 10, and 14 dropped out prior to the completion of the experiment.

Hour-and-a-Half Track Meet

By KENNETH D. MILLER
Professor of Physical Education, Florida State University

ONE of the strangest paradoxes in modern athletics is the fact that although every dual track and field meet is made up of ingredients basic to providing a thrilling sports spectacle, in actual practice, most dual meets are pretty dull affairs compared to the typical basketball game, wrestling match, or even to the closely-related swimming meet. Except in a few areas where colorful promotion and outstanding meet organization have built up an enthusiastic following of fans, track meets just do not draw like most other competitive sports contests in this country.

That track is inherently interesting is clearly indicated by the continued existence of the sport throughout the history of man, and the observation that it has always been the keystone activity around which all great international athletic festivals are organized. Yet despite these facts, dual meets in the United States are seldom characterized by overflow crowds.

Such a situation is illogical. The man-against-man competition, the variety of events testing most physical skills, and the tremendous enjoyment to be gained merely from watching skilled athletes in action, all combine to form a basic pattern which should make track and field meets highly attractive sports contests from the spectator's point of view.

The Time Factor

Considering the many and varied interest factors which are basic to the sport, it becomes apparent that something must be wrong with the manner in which the majority of track meets are conducted. In this regard, even the most casual observer can note that the chief interest drawback is a matter of timing. Late starting, long delays between running events, and field contests which drag on until dark, add up to an effective killer of spectator satisfaction. The dyed-in-the-wool track fan is a fanatic, and will stoically tolerate the worst organizational conditions in order to see a meet through. However, the more normal sports enthusiast will not tolerate a contest which does not maintain a high level of interest.

This all-important time element has been the bugaboo of dual track meets since the turn of the century, and yet, except for sporadic and isolated efforts to cut down on the length of meets through improved administrative techniques, track coaches and officials have done little toward attempting to change the prevailing situation. Most people in track work accept the lack of fans as something completely beyond their control — as a sort of necessary burden of the sport. Such thinking can conceivably wipe out dual meets in another twenty years.

The purpose of this article is to offer some suggestions which have the possibility of increasing the popularity of the sport as a spectator event by cutting down materially on the running time of dual meets. It is almost axiomatic that a show of any kind will draw spectators if it is a good show, and if it is run off well. The following considerations are presented as a possible means of improving the basic show offered in a dual track meet by making it more interesting. The actual conduct of the meet will be discussed in a subsequent article.

Running Events Changes

1. *Eliminate the two-mile run.* This event is the least popular, the most time-consuming, and, to most fans, the most boring of all outdoor races. Since the mile run provides an adequate and interesting endurance contest, and because, in the majority of dual meets the same men are entered in both the mile and two-mile runs, the elimination of the longer race is a rather obvious first consideration.

2. *Eliminate the low hurdles.* The 220-yard low hurdle race is no longer an event which places any particular premium upon hurdling ability. It is strictly a sprinting event, and since both the characteristics of running speed and hurdling are adequately measured in other races on the program, the lows is an event which has little to recommend its continuation in dual track and field meets.

3. *Replace the 100-yard and 220-yard dashes with a single sprint event of 160-yards.* Both of the standard sprint races are measures of the same skill, and almost without exception the same athletes compete in both events. There seems to be little beside tradition to support such duplication.

The suggested substitution of a race of 160 yards is based upon a recent study of world and Olympic records.[1] In this investigation plotted rate curves of record performances indicated that the maximum running rate occurs at 15.0 seconds, which corresponds to a distance of about 150 meters. Since this is the optimum distance to run in order to achieve the maximum possible average rate, the practical equivalent in American linear measurement — 160 yards — provides a much more logical sprint race than does either the 100-yard or the 220-yard dashes.

Field Events Changes

1. *Eliminate the javelin throw.* Most state high school federations have already done away with this event, and college coaches are having increasing difficulty in finding men with prior experience, or present interest, in javelin throwing.

From a safety point of view, of course, this event has long been considered one of the most hazardous in athletics. Elbow and shoulder injuries are commonplace occurrences among participating athletes, and the ever-present danger to spectators and

(Continued on page 48)

KENNETH MILLER graduated from Oregon and coached in California high schools until the war in which he served as a navy aviator. After the war he was track coach and assistant basketball coach at Lock Haven (Pa.) Teachers College. After six years as track coach at Florida State he resigned this past fall in order to devote full time to his duties as Chairman of the Graduate Program in Physical Education.

[1] M. H. Lietzke, "An Analytical Study of World and Olympic Records," Science, CXIX (March 12, 1954), 333-36.

And A Speedy Recovery to You

By JAMES W. LONG, Ph.D.
Department of Athletics and Physical Education, Wake Forest College

STRAINS, sprains, contusions, dislocations, and fractures are bound to happen in the best of families and in the best of physical education programs. Facts and figures substantiate the extensiveness of such occurrences on playgrounds, on football fields, in gymnasiums, in backyards, on the highway, and in homes.

Of course, the number and severity of injuries can be decreased by intelligent and planned safety procedures but casualties will still occur. When an accident does happen, what will be the plan of action?

Common first aid information such as knowledge of pressure points and stoppage of bleeding, treatment for shock, prevention of further tissue damage from handling of fractures and numerous other emergencies is important.

In addition, there is a basic routine that should be helpful to parents, teachers, and coaches in the proper handling of most minor injuries that result from bumps, twists, and overstretching. Injuries such as sprains, strains, contusions, dislocations, and fractures need intelligent care. Proper handling of these injuries can speed recovery by several days. If articulations or joints are involved, the joints will be stronger and less liable to future injury if they are handled intelligently.

The basic routine for the care of strains, sprains, contusions, dislocations, and fractures follows a progressive pattern of action. We will give eight steps which should be taken. These steps are not new, but they need continuous review and study.

1. Cold should be applied as quickly as possible to prevent hemorrhaging, swelling, and impaired circulation.

Many forms of cold may be used as ice packs, towels soaked in cold water and changed frequently, and cold water placed in convenient containers.

Cold should be applied until the danger of hemorrhaging is past.

The time of danger varies from 20 minutes to approximately 120 minutes. The average is around 30 to 45 minutes. Precaution must be taken to prevent fainting or the complications from shock.

2. Compression should be used interchangeably or in conjunction with cold. Tension or elastic bandages may be applied. Rubber doughnuts or other pads may be placed around or over the injured area and held firmly in place by tension bandages. Adhesive tape may be used if the taping method allows for limited expansion.

3. The position of the injured area is also important in the prevention of hemorrhaging, swelling, and impaired circulation.

JAMES LONG graduated from Missouri Valley College in 1937 after winning 15 letters. He coached in high schools at Harrisonville, Missouri; Mt. Carroll, Illinois; and Independence, Iowa where his teams won 13 out of a possible 16 championships. During the war he was in the navy's physical training rehabilitation program. He has been at Wake Forest since 1946 and holds a Ph.D. from North Carolina.

Dislocated bones such as the humerus (arm) from the glenoid cavity (shoulder socket) should be supported to prevent further damage to ligaments, tissues, blood vessels, and nerves.

Sprained ankles should be elevated whenever possible. Arterial pressure and gravity will concentrate a great deal of blood to the lower extremity. Venous circulation, which moves the blood back to the heart, must work against gravity plus the impaired circulation due to the injury. At best, venous circulation is poor.

The position of the body is also important in preventing shock, fainting, and chilling.

Limited or excessive use of the injured area immediately following injury can cause hemorrhaging. Immobilization of the injured joint may be valuable. Walking on the injured joint areas within a few hours after injury should be discouraged.

4. The injured person should next be advised and encouraged to see his family or team physician. The physician will examine the injury, x-ray the injury if it is indicated, and prescribe treatment.

The parent, athletic coach, physical educator or trainer should follow the doctor's suggestions. A close-working relationship should be established with the doctor. Basic knowledge of anatomy, physiology, and physical medicine is certainly advantageous and desirable. A definite plan of action should be agreed on, with the doctor prescribing and supervising the subsequent treatment.

5. After the danger of hemorrhaging is past, heat should be applied.

Heat to the injured area will improve the healing process and speed recovery. Heat dilates blood vessels, thereby increasing the circulation of blood through the area. The blood carries the properties of healing essential for recovery.

Many forms of heat (thermotherapy) can be used. Heated water (hydrotherapy, also a form of heat through conduction) is used extensively, especially in the early stages of treatment.

Whirlpools give not only heat, but also a gentle massage which increases circulation. Hot moist compresses are practical and inexpensive. Soaking injured areas in hot water is easy and valuable.

Radiant heat (a form of heat through convection) is inexpensive and produces good results. Inexpensive heat lamps are available, and lamps with varying wave lengths have slightly different effects. Lamps can

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The Physiological Effects of Training

By JAMES E. COUNSILMAN

Associate Professor in Charge of the Physiology of Exercise Laboratory
Cortland State Teachers College, Cortland, New York

EXACTLY what is meant by the expression *getting into condition?* Although coaches and athletes may not think of it in this manner, a comparable question would be: "What are the physiological changes which occur during training?"

These physiological changes are many and frequently complex. To discuss each one of the changes in this article would be impracticable. Since many of them are of importance only to the physiologist; therefore, only the gross physiological changes which occur and which we feel would be important to the coach and athlete will be discussed.

In this article we will discuss physiological principles and their application to the training program. In the past three decades much research has been conducted in this area. Many previous misconceptions have been disproved and yet some prevail. One opinion concerns the longevity of athletes and it will be discussed later.

Most people are familiar with the acute or temporary effects which result after the onset of exercise, such as an increase in heart rate and breathing rate, but these effects are temporary, lasting only during the period of exercise and recovery. The chronic or longer-lasting effects of exercise result only from a systematic continuous exercise program conducted over a relatively long period of time. These chronic effects have been studied, and although there is not always complete unanimity of opinion among the researchers, we feel we can, on the basis of a study of this research, make the following statements with a high degree of validity.

Skill and Efficiency

Athletes in the various sports place emphasis upon the development of different qualities in their training programs. The distance runner naturally places his emphasis upon developing endurance, the sprinter upon speed, the wrestler on strength, etc. All training programs attempt to develop one thing in common and that is skill. The skills used in some activities such as the team sports of basketball, football, soccer, etc., are more complex than the skills used in running and swimming. For this reason the time spent on the acquisition and perfection of these skills takes up most of the training program. However, no matter what the activity, if the proper mechanics and technique are practiced, there will be an increase in the skill and efficiency of performance. By practicing the proper movements in the proper sequence and continually repeating them, as is done in practicing the correct golf swing, nervous patterns are being established. The greater the number of times that impulses are sent over these nervous pathways, the more firmly established they become, until what has been practiced becomes mechanical or *a habit*. This explains why drill on proper fundamentals is important; it also explains why bad habits, once formed, are hard to break.

It is also true that the more a skill is practiced properly, the better the athlete learns to use only the muscles involved in performing this particular skill. He thereby reduces the amount of energy necessary to perform a given amount of work. An increase in skill and efficiency frequently may be the first changes which occur as a result of training.

Effect Upon Muscles

It is a well-established fact that the strength of a muscle is proportional to its cross-sectional area. To strengthen a muscle, its functional size must be increased. This increase beyond the muscle's normal size is referred to as hypertrophy. In the case of hypertrophy, there is no increase in the number of cells (hyperplasia) as was formerly believed; but rather the individual fibers increase in size. There seems to be a relatively equal increase in the sarcoplasmic material and the connective tissue in the muscle. The muscle not only becomes stronger, but it becomes tougher and has improved tonus. It will suffer less from trauma and, contrary to the opinion of many persons, does not lose any of its ability to perform refined movements.

All types of exercise will not improve muscle strength. The law of use and disuse applies also to muscle as it does to other organs of the body. If a muscle is not used, it will atrophy or shrink in size. If it is used, it will develop and the extent to which it develops will depend upon the demand that is made upon it. The size of a muscle and, consequently, the strength of a muscle is increased fastest by working with loads which are near-maximum loads. Recent research seems to indicate that maximum strength can be obtained by working with loads as low as 60 per cent of the greatest load which that muscle or group of muscles can handle. Frequently this is referred to as an application of the *overload principle*. This term is unfortunate in that it seems to carry the connotation of overexertion and strain. Actually, if a muscle were truly *overloaded*, it would either become strained or it would not be able to shorten its length.

In DeLorme's[1] studies he has referred to this type of exercise as pro-

[1]DeLorme, Thomas L., "Restoration of Muscle Power by Heavy Resistance Exercises," *The Journal of Bone and Joint Surgery*, vol. XXVII, No. 4, October, 1945, pp. 645-667.

The gym at Towson High School, Towson, Maryland, features five Porter 217B "Hoistaway" Basketball Backstops which may be hoisted to the ceiling to make room for other activities. Porter 237B All-Steel Fan-Shaped Backboards are used. Towson also has Porter gymnasium apparatus including climbing ropes, horizontal bar and gym mats.

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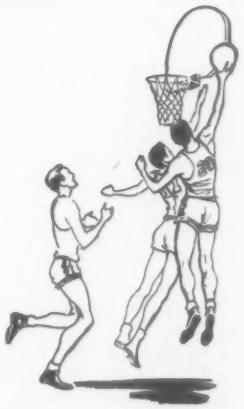

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gressive resistive exercise. DeLorme has evolved the following principles which point up graphically the application of the *overload principle.*

1. Low-repetition, high-resistance exercises build strength and power; whereas high-repetition, moderate-resistance exercises produce endurance.

2. Each of these types of exercise is incapable of producing results obtained by the other.

3. To develop rapid hypertrophy in a muscle, the muscle should be subjected to strenuous exercise at regular intervals and to the point of maximum exertion.

An example of the high-resistive, low-repetition type of exercise would be that of working with heavy weights, sprinting in running or swimming, etc. An example of the moderate - resistive, high - repetition type would be that of the use of pulley weights with many repetitions and swimming or running long distances at a moderate speed.

If a great number of repetitions can be done of any given movement, it can be assumed there is not enough resistance to place the exercise in the area of high-resistive exercises.

Compare the leg muscles of a sprinter with those of a distance runner. The sprinter's legs probably have developed greater hypertrophy and strength than those of the distance runner whose legs have greater endurance. The decrease in time per unit of work is one way of increasing resistance and this is what the sprinter has done. The stronger a muscle is, the faster it is able to contract against a given load. Thus, by increasing muscle strength the speed of movement has been increased, especially when greater than average loads are being used.[2] All research in this area shows that increased strength is accompanied by increased speed.

What changes have occurred in the distance man's muscles that permit him to have greater endurance? When laboratory animals, which were run in wire rotating cages for several hours a day over a period of two months, were examined, it was found there was an increase in the number of capillaries up to 40 per cent in active muscles. It would appear that this increase in vascularization was brought about by exercise of the moderate-resistance, high-repetition type. The increase in the number of capillaries could account to a large extent for the increase in endurance noticed in the animals. That a similar vascularization occurs in man under the same conditions is likely. The increased number of capillaries could aid in the removal of the waste products of exercise and would facilitate the transportation of oxygen and blood sugar to the exercising muscle. In exercised animals it was also found that the active muscles contain more glycogen than did the muscles of control animals. This factor would also contribute to the local muscular endurance.

In a group of runners, including both sprinters and distance men, a negative correlation was found between leg strength and the time for a mile run. The contention that the type of training in which distance men engage does not build strength to the degree as does that in which sprinters engage would seem to be borne out.

Both strength and endurance are desirable qualities to develop in all activities so it is important that all training programs be designed in order to build these qualities. In track events building strength and endurance is handled by running both over and under distances in the workout. A swimmer who is training for the 440-yard event will frequently swim over a mile in his workout to improve endurance. Frequently, he will swim sprints to improve his speed and strength.

JAMES COUNSILMAN captained the Ohio State swimming team for two years and then served as assistant swimming coach at Illinois and Iowa before going to Cortland. In addition to his coaching duties, Dr. Counsilman is in charge of the physiology laboratory in the school's Physical Education Department.

Heart Size

Myocardium or heart muscle is similar to skeletal muscle in that it increases in size and strength in relationship to the demand made upon it. Consequently, when a person engages in any activity — whether it be football, cross country, racing, or manual labor — which puts a demand upon the circulatory system to supply more blood to the exercising tissues, it is logical to assume that the heart muscle will hypertrophy.

Studies of champion distance runners, cyclists, and other endurance athletes have shown an enlarged heart in many cases. Whether these athletes developed larger hearts as a result of their training program or are champion endurance athletes partially because of their larger hearts is not always clear due to a lack of control in such studies.

Whether enlargement, if it does occur, is due to hypertrophy or dilatation is another debatable question. If only dilatation occurs, it would imply a detrimental effect. Since heart size is determined in man by means of chest x-rays, it is difficult to prove either view conclusively. Studies of laboratory animals have shown that the increase in heart size, due to an exercise program, was accompanied by an actual increase in the weight of the hearts of the exercised animals over that of the control animals. This would indicate that, if there were dilatation, there was also hypertrophy. The hearts of exercised rats were also found to return to normal in size and weight within three to four weeks after cessation of exercise.

Herxheimer's[3] studies in Germany in the 1920's showed that on the basis of heart size compared to body weight a group of athletes had heart sizes ranging from the largest to the smallest in the following order: 1. Marathon runners. 2. Long distance cyclists. 3. Oarsmen. 4. Boxers. 5. Middle distance runners. 6. Weight lifters. 7. Long distance swimmers. He also concluded that increase in heart size, associated with training, was not comparable to increases associated with pathological conditions. He claimed that hearts which were hypertrophied returned to their normal size after training ceased.

In 1923 the competitors in the Boston marathon were x-rayed to determine if there were any who had enlargement of the heart beyond the normal variation. It was found that there was not a single case which exceeded normal variation.

The term *athlete's heart* is an unfortunate one and is frequently associated by laymen with a pathological condition. Actually, an athlete's heart is a normal heart which is somewhat larger and which has a slower rate and a greater stroke volume. It is important to remember that after the end of training the heart will regress to normal size. There is no evidence to prove that this enlargement

(Continued on page 38)

[2]Zorbas, William S., and Karpovich, Peter V., "The Effect of Weight Lifting Upon the Speed of Muscular Contractions," *"Research Quarterly,* vol. 22, No. 2, May, 1951, p. 148.

[3]Cureton, Thomas K., *Physical Fitness of Champion Athletes,* The University of Illinois Press, 1951, pp. 130 and 131.

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Promoting Track in the High School

By RICHARD L. LACEY
Track Coach, Pelham, New York, High School

IF coaching were all that the average high school track coach had to worry about, his job would be a comparatively simple one. Unfortunately, if he were to make coaching his sole activity in the sport, it would not be long before he found himself without any boys to coach.

More important in high school track and field development even than coaching itself is promotion of the game. This is a problem which is not often faced by college coaches, who are able to draw, for the most part, on material seasoned through high school competition. Also, college men are at least familiar with the sport.

However, in most high schools when a boy enters ninth or tenth grade, the chances are that he has had little or no direct contact with track and field; in fact, he knows next to nothing about it. Football, basketball, and baseball mean something to him. Track is just a vague term he has heard occasionally.

Thus, the high school coach, cannot, at the beginning of each season, publish a notice "All candidates for the track team report on such and such a date," and leave it at that. If he does, he will be lucky to have enough manpower to go around.

"There's no interest in track in our school," is a refrain which is heard all too often. We are familiar with a surprising number of schools with enrollments of over 1000 where the track squad seldom goes over 20 to 30 boys. What those coaches who make this statement do not realize is that interest has to be built; that high school youngsters just do not have a natural interest in track the way they do in football, basketball, and baseball.

The conscientious and ambitious high school track coach must be willing to devote even more time to the promotion of his sport away from the cinder path than he does coaching on it.

How can he best promote his sport?

Here is a program which is more or less guaranteed to insure a large and interested track following in an average high school. However, the coach must make up his mind to stick with it and put in the time and energy required.

It is necessary for the track coach to embark on an extensive publicity campaign. Even the most rabid track enthusiast will probably admit that the press and the public, in America at least, are more interested in football, basketball, and baseball than they are in track and field. For this reason, the coach will have to be his own public relations director. He will have to work overtime locating and even writing stories for the local as well as the school paper.

The coach should have these stories published not only during the season, but also at any other opportunity. He must try his best to keep track in the limelight all year long. Announcements in assembly, notices on the daily bulletin board, stories for the local papers on everything from pre-meet information to items on alumni who may be running on college teams, placement of pictures on school bulletin boards, announcements, schedules having to do with track, and the showing of Olympic and other films to the entire student body are just some of the publicity angles which the public relations coach can employ.

Even if his team is not a big winner at first, the coach can always play up in the local and school press individual performances that are good. One of the many fine things about track is that we can practically always find something to rejoice over, even if it is only that a third string high jumper has improved from 5 feet, 3 inches to 5 feet, 6 inches.

The track coach must do much of the actual writing of these stories and items himself, at least until he has educated the school writers and representatives of the local press. We have made real track fans out of reporters who, in the beginning, did not know a discus from a low hurdle.

As we mentioned previously, a track coach cannot simply issue a call for candidates and let it go at that. The coach who wants a steady flow of material must go out and scour the highways and byways of the school for boys. In the beginning he must be willing to take, even seek out, boys who have been rejected by coaches of other sports. He must remember that not too many of the newer and younger boys in school will come out for track of their own accord. They must be encouraged and invited to come out.

By looking over the physical education classes the track coach can learn what boys are not out for other sports. It is important that he look for possible material in the halls and classrooms. Good prospects turn up in strange ways. We will never forget the day we looked down the hall and rubbed our eyes on seeing a boy chinning himself on the pipes that ran along the ceiling. How he got up there we will never know; but, after calling him in for detention, we persuaded him to go out for track and he became one of our best pole vaulters.

Football players can be sold on going out for track in the spring because it will help them in the fall. At Pelham, many a basketball player has been persuaded to participate in cross-country in the fall and track in the spring on the guarantee that it would put him in better condition for the coming basketball season.

The track honor roll contains a number of names of performers who might never have become interested had it not been for some coach who encouraged them.

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or individuals should be entered as often as possible in big interscholastic meets on a sectional or even a national level. If a boy runs in a meet like the Penn Relays, he is sure to go back home and talk about the great time he had, the pleasure of traveling to a distant city, and the thrill of meeting established stars.

These competitors will be the coach's best ambassadors of good will for track. Before long, word will spread through the school that if a boy wants to get around and really be in with the best, it is smart to join the track team.

We are certain we should not have half the boys out for track that we do, were it not for the glamour attached to competition in big interscholastic meets. If the team is good enough, or lucky enough, to win a trophy or some medals, the coach should make sure that these awards are given the proper publicity.

The sports-minded American public is notoriously record-conscious. High school students are no exception. Another aid to building up interest in track and field is to acquaint the student body with the school records. A list of school marks in all events should be displayed in the trophy case or some other prominent spot, and published in the school and local newspapers. We see that every student in school receives a copy of the season's schedule along with a listing of the school records.

It is of the utmost importance that all home meets are run off quickly and attractively. Nothing, in our opinion, has done more to place high school track below football and basketball in spectator interest than the careless manner in which many meets are conducted and presented to the public. We have seen dual meets drag on for three hours or more when they could very well have been concluded in less than half the time.

It should be borne in mind that the average spectator at a high school meet knows little or nothing about the sport. Therefore, it is vital to use a public address system or, at the very least, an announcer with a hand megaphone, to keep the crowd informed of what is going on. Any other devices that can be thought of to make meets more colorful and meaningful to those watching should be used.

Again, the coach will probably find that he must personally do considerable work to get people out to the meets through publicity or through seeing that his team promotes the meets among the student body.

Naturally, the more spectators we have at meets, the more candidates will turn out for the team. If football drew no crowds, it is doubtful if such numbers of high school youngsters would be attracted to the sport.

In some areas twilight dual meets have proved exceedingly popular, for they give the fathers and other townspeople a chance to attend. At a recent Pelham-Bronxville twilight meet, the crowd was greater than one often finds at a small high school football game on a Saturday afternoon.

One of the main reasons that football, basketball, and baseball take the play away from track is that boys are introduced to these sports, competitively, at an early age. The Little League, town recreation programs, and other media provide plenty of opportunity for children of elementary school age to learn the contact sports. In many areas very little is done to acquaint these youngsters with track.

A track coach who is interested in promoting his sport will do well to see what can be done in his town to bring the younger boys into track activity, of a modified nature, of course. The local recreation commission, the cub scouts, and the boy scouts are just some of the organizations that will sponsor track events if they are given the right kind of encouragement and leadership.

It is important that track and field be made part of the program of the junior high schools, and even to include events for these youngsters in conjunction with varsity meets. As an example, Pelham now includes in almost all of its dual meets (usually five or six each outdoor season) special relays for seventh, eighth, and ninth grade students. Having these special events is proving to be almost as good a *feeder* for the squad as a baseball farm system, and it has done a great deal to build up interest in track in general.

An annual interclass meet at the beginning of each season is another *must*. Many a boy, after taking his first tentative fling at track in an intramural meet, has gone on to become a star of the varsity in later seasons.

The importance of outfitting the team properly seems almost too obvious to mention. However, after nearly 20 years of following high school track, we are ready to conclude that schoolboy runners are the most poorly uniformed group to be found on the athletic scene. Even at big national meets, we see not just a few, but many teams wearing outfits which are a disgrace.

In practically all schools football and basketball uniforms are colorful, uniform, and attractive. A boy would be proud to wear them. Why not put track in the same category? The track coach feels his boys should possess attractive uniforms, but they cost money and he has little enough as it is. Again, the answer is promotion! If the board of education or the general organization is unable or unwilling to provide the necessary funds, the coach should try the P.T.A. or other interested groups.

Attractive sweat suits and running shirts may add many new faces to the squad. It is only natural for a boy to wish to feel proud of the uniform he wears on the athletic field when he represents his school. Just think of the effect upon the spectators, many of whom may be potential material for the future.

Finally, it must be stressed that results from a program such as we have discussed will not occur overnight, although they will come surprisingly fast if a coach is willing to follow the procedure conscientiously. He must keep plugging from season to season. By the very nature of their appeal, football, basketball, and baseball practically promote themselves from year to year. Also, television, radio, and a national press make it almost unnecessary for the coach of these sports to feel any vital concern about stirring up interest. But enthusiasm for track will die out unless it is constantly supported.

At Pelham, our male enrollment is less than 200 and yet we have had squads averaging 50 to 60 boys — sometimes as high as 75. We draw good crowds to our meets; we have had a fair measure of success; and we have had a lot of fun. Yet we are absolutely certain that, if we relaxed our promotional program even for a year or two, it would not be long before track would virtually drop into the discard in our school.

DICK LACEY captained the Colgate track team in 1931 and 1932 and has been coaching at Pelham for twenty years. During this time his teams have won 86 out of 105 dual meets besides winning numerous relays in both indoor and outdoor meets. The record is even more outstanding when we consider that Pelham has neither an indoor nor outdoor track of its own on which to practice. Lacey is currently president of the Metropolitan Track and Field Coaches Association.

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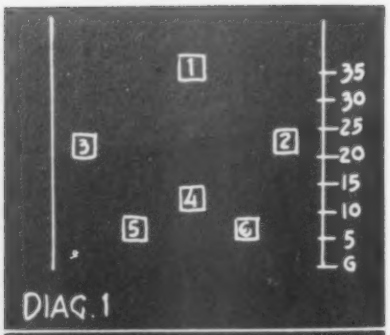

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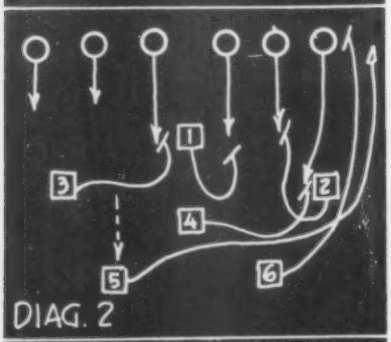

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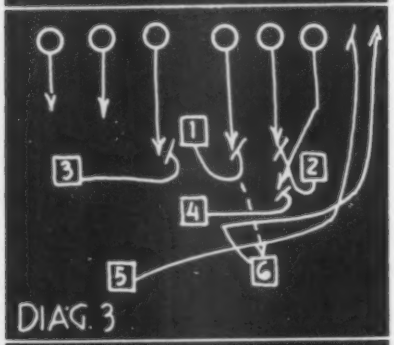

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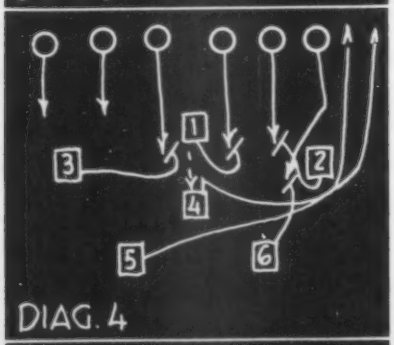
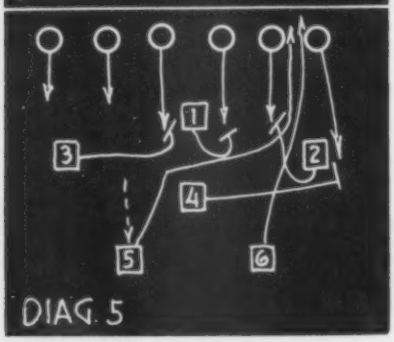


DIAG. 4



DIAG. 5

Six-Man Kick-Off and Punt Returns

by ANDREW W. GRIEVE
Athletic Director, Van Etten, New York Central School

ONE phase of six-man football which seems to be sadly neglected is the return of kick-offs and punts. It would seem to us that these offensive phases of the six-man game should be stressed. We believe that too many coaches fail to teach their players an organized return of either the kick-off or the punt and thus leave a great deal to chance.

This fact becomes obvious when we see a boy receive a kick and sprint straight downfield with no definite blocking pattern to follow. He may get away for a long gain, but is this due to offensive planning or to a defensive lapse?

Another indication of haphazard kick returns is the number of boys who simply become spectators on such returns. If the ball-carrier does not run to their side of the field, their only contribution is moral support. They might as well be on the sidelines with the cheerleaders.

Actually, in six-man football it is easier to develop kick-off and punt returns than it is in the eleven-man game. There are many articles on kick-off and punt returns in eleven-man football, but rarely can one be found on the six-man game.

The factor of observation should make the coach of six-man football more cognizant of these phases. With so few players on the field he can perceive, more readily than can the eleven-man coach, why his kick returns are not effective. One missed block may mean the difference between a long or short return. In six-man football, and especially with our system, it is a simple matter to determine which player is consistently missing his block and something can be done about it.

Our basic kick-off return alignment is shown in Diagram 1. The various positions of the players will be determined by the personnel on hand, not necessarily by the positions the boys play while on offense or defense. Generally, our No. 1 man is the center, Nos. 2 and 3 are the ends, and Nos. 4, 5, and 6 are the backs. With the exception of the center, whose position is regulated by the rules, the exact location of the players depends upon the kicker. If he kicks deep, then our depth is as shown in Diagram 1. Numbers 2 and 3 are located on the 20 yard line, a few yards from the sideline. Number 4, who should be the best blocker in the backfield, is stationed on the 10 yard line in the middle of the field. Numbers 5 and 6 should be speed merchants and they are located at approximately the 5 yard line and about 10 yards in from the sidelines.

On the other hand, if the kicker does not boom the kick deep downfield then the backs can be pulled up somewhat.

As the ball is kicked, each of the three front men has a definite assignment. The No. 1 man drops back about 10 yards and loops to his right. His blocking assignment is the third defensive man in from the right. Number 3 breaks straight across the field and attempts to get an outside position on the fourth defensive man from the right. The No. 2 man retreats about 5 yards and loops to his left, attempting to drive the second defensive player on the right to the inside. Diagram 2 shows these assignments.

As far as the blocking assignments are concerned, it makes no difference where the kicker is located. Each boy's assignment is based on his opponent's location and not his function.

The assignments for the backfield are determined by the kick. Diagram 2 shows the procedure if the ball is received by No. 5. On receiving the ball, he fakes up the middle in order to pull the defensive left end toward

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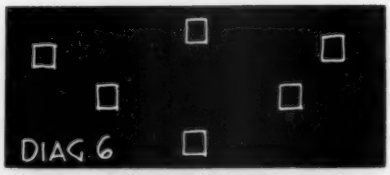
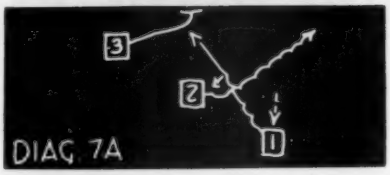




the middle. This fake will set up the defensive left end for No. 4 who moves across the field to come back from the outside on the defensive end. The No. 6 man breaks up the sideline and leads the play, picking off any defensive player who may sift through the blocking wall. After faking to the middle, the ball-carrier slants for the sidelines and gets behind his wall of blockers.

ANDREW GRIEVE began coaching at Wellsburg, New York following the war, and five years ago moved to Van Etten. His teams have now won 14 of their last 15 games, going undefeated a year ago and tying for the championship this past season. His track teams were league champions in 1953 and '54 and last year his basketball and baseball teams also won championships.

If No. 6 happens to receive the kick, he slants for the middle and then breaks to the right sideline. In this case No. 5 leads the play as No. 6 did in the last situation. This particular situation is shown in Diagram 3.

Diagram 4 indicates the assignments when No. 4 receives the kick. He must hesitate slightly in order to allow Nos. 5 and 6 to advance in front of him. Normally, this hesitation is very slight since Nos. 5 and 6 will break up the field as soon as they observe that the kick is going to No. 4. Number 4 still carries out the fake up the middle, trying to pull the defensive end in. Number 6 has the task of driving the end in. Then No. 5 leads the play.

There may be times when a particularly shrewd end will not go for the fake run up the middle. If this occurs, then the player who is assigned to block the end should drive him out to the sideline. Then the ball-carrier will have to compensate and break inside the end. This point is shown in Diagram 5.

Diagram 6 shows a receiving alignment which has been used by several of our opponents. This particular set-up is quite adaptable to the reverse or the fake reverse. The simple reverse is shown in Diagram 7A. Number 1, the deep back, on receiving the kick, breaks to his left and hands off to No. 2 who moves to the right. In

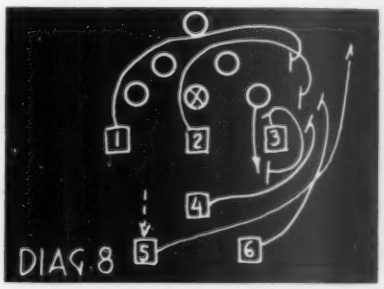
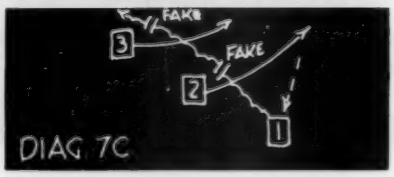


Diagram 7B, No. 1 proceeds as he did in Diagram 7A but fakes to No. 2, continues in the same direction, and hands off to No. 3. Number 3 moves to his right, following No. 2 who leads the play. The *coup* is shown in Diagram 7C. Number 1, on receiving the kick, breaks to the left and fakes to both Nos. 2 and 3 and continues up the left sideline. The first two returns will help set up this particular maneuver.



Punt Return

The punt return which is shown in Diagram 8 is based on a principle which is similar to our fundamental kick-off return, in that we set up another blocking wall. Diagram 8 shows this punt return.

Our No. 1 man, the left end, and No. 2 man, the center, charge the kicker in an attempt to block the kick. If they fail, they loop to the right and set up as the most advanced

(Continued on page 47)

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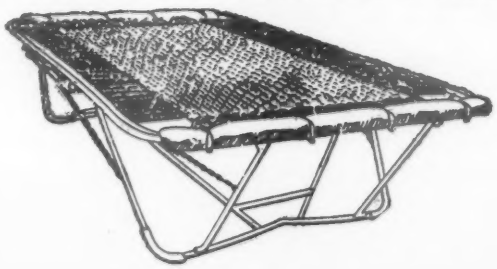

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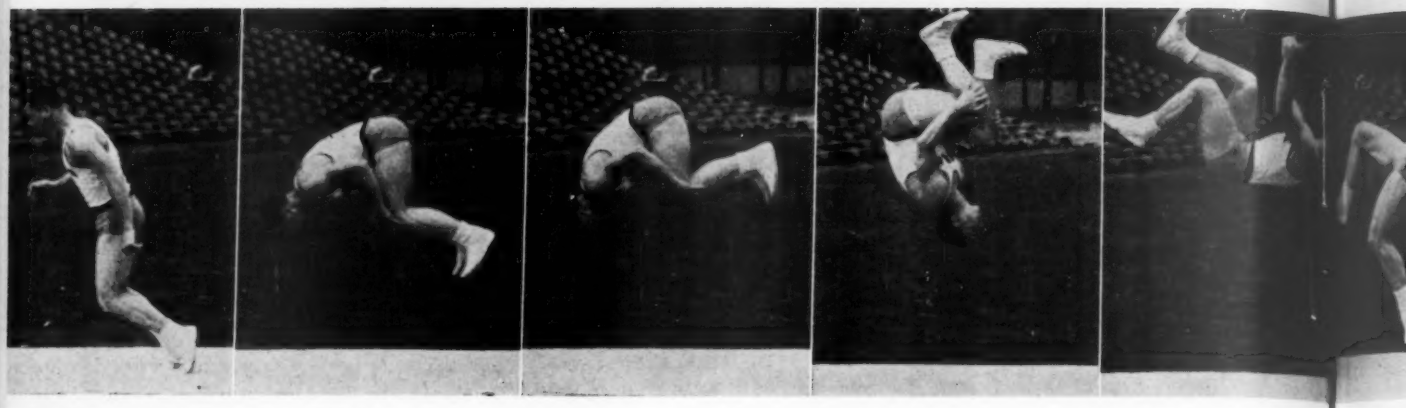


Somersaults—Gainers and Routines

By DICK HOLZAEPFEL
Gymnastics Coach, University of Iowa

THIS article is the third of a series of articles on tumbling. The first article appeared in the October issue, and the second in the January issue. The tumbling stunts presented are from the somersault category; however, combinations of handsprings and somersaults are presented to introduce the tumbler's routine. This routine is presented to clarify nomenclature, to describe stunts, and to present combinations.

The Gainer. This stunt does not lend itself to use in smoothly executed tumbling routines. It is basically a free exercise stunt or a single stunt which is not able to be combined in routine.

Execution. 1. After a slow run the gainer is executed immediately without an intervening tumbling skip.

2.) The performer swings his arms backward in preparation.

3). He stretches one leg to the rear to institute the take-off.

4.) His weight is put on the opposite leg.

5).Then his arms are swung forward and upward, and his swinging leg is driven forward and upward.

6). The performer's head is extended upward and backward. His take-off is the same as it is for a high jump.

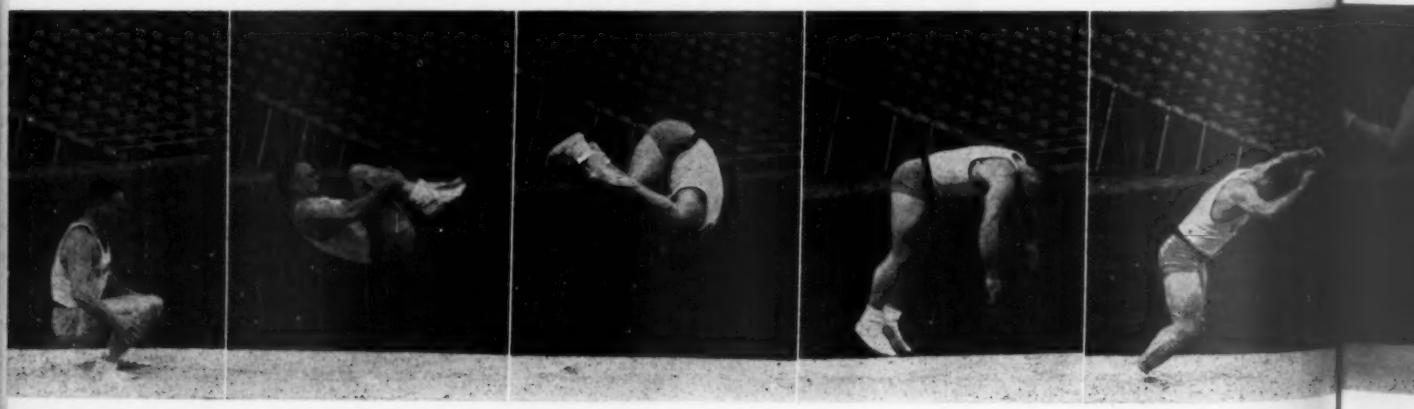
7). Then the performer's back is overstretched strongly.

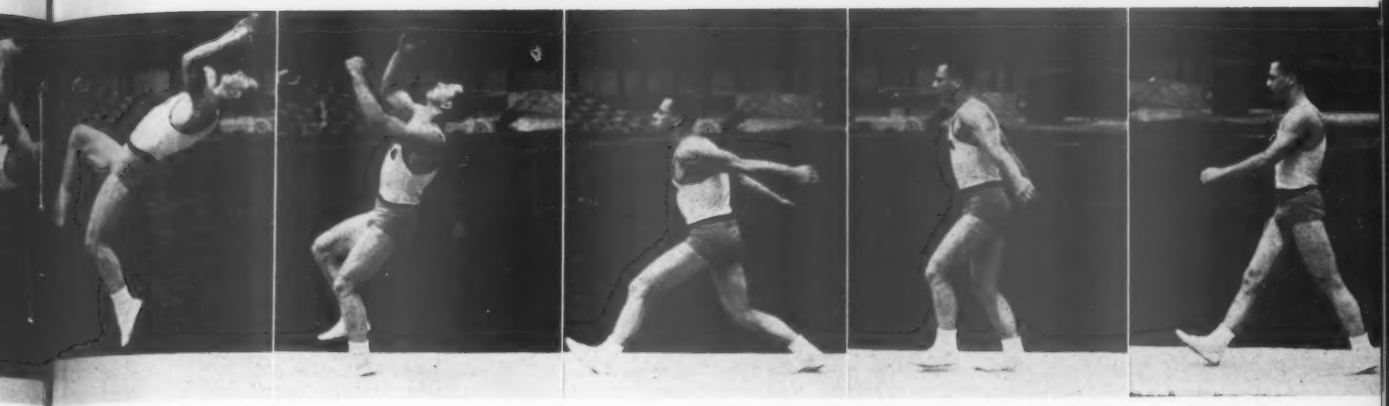
8). His knees are brought up to his hands to perform a high, tight tuck.

9). The tuck is maintained until three-quarters of the stunt is executed.

10). Then the tuck is opened, the performer's head is raised, his trunk is extended, and his legs are extended for the landing.

Suggested Teaching Method. 1). Use of the overhead mechanic and the hand supported belt is excellent.





2). The performer attempts execution with a walk as the approach. 3). A strong, high leg and arm whip should be encouraged. 4). The tuck should be maintained. 5). The performer should not fail to extend his head sharply to the rear.

The Backward-Forward Somersault. These two stunts are described and executed from a preceding backward handspring in order to illustrate how they could be used as a finish to a routine.

Execution. 1). As the back handspring is finished the performer is leaning slightly toward the running direction, thus permitting a high lift for the backward somersault action.

2). His arms are thrown forward and upward, then upward and to the rear.

3). His head, trunk, and legs are strongly extended to give a strong upward lift.

4). The tuck is executed at the height of the backward somersault and is maintained until three-quarters of the stunt is executed.

5). Then the tuck is released and preparation for landing is made.

6). The landing is incomplete be-

THE GAINER

cause the performer's feet are never brought way under his body, but are extended to the rear.

7). His arms maintain their raised position which is excellent for instant chopping action.

8). His knees are slightly flexed upon landing and for the front somersault take-off.

Note all picture series read from right to left.

9). Then the performer's trunk is raised sharply, while his arms and head are sharply flexed down and under.

10). The tuck is executed while tremendous forward angular rotation is attempted.

11). The powerful take-off, tuck, and body flexion are all used for the purpose of a fast turnover from a relatively low height.

THE BACKWARD— FORWARD SOMERSAULT

12). If necessary, the tuck is maintained until the landing.

13). The performer's body is inclined over his feet for balance.

Suggested Teaching Method. 1). The front somersault should be taught first. Have the performer take off from a hard to a soft mat. A trampoline should be used. The trunk lift and take-off from the balls of the feet should be stressed. The performer should go upward for height by straightening his legs and raising his chest.

2). The backward somersault should be taught from a stand and then from a flip-flop.

3). A performer should be sure and use action-reaction from a short landing technique out of a back somersault. 4). Tuck maintenance and wide foot landing stance should be stressed. 5). An overhead body mechanic should be used. The forward somersault can then be expected without taking up the mechanic, thus preventing stalling.

Rounders or Alternating Whipbacks. These stunts are best described in the way they are used in a series or routine. A bounder needs a pre-

ceding established motion to permit the somersault to be executed.

Execution. 1). The forward motion is created into backward action by the *work horse* of the tumbler — the round-off.

2). After the performer's feet have been pulled well under for the take-off position the throw for the bounder is executed.

3). His arms are driven upward and backward. A bounder or whip-back is often said to be a back handspring without the use of the performer's hands.

4). His body or backbone is strongly overstretched to the rear.

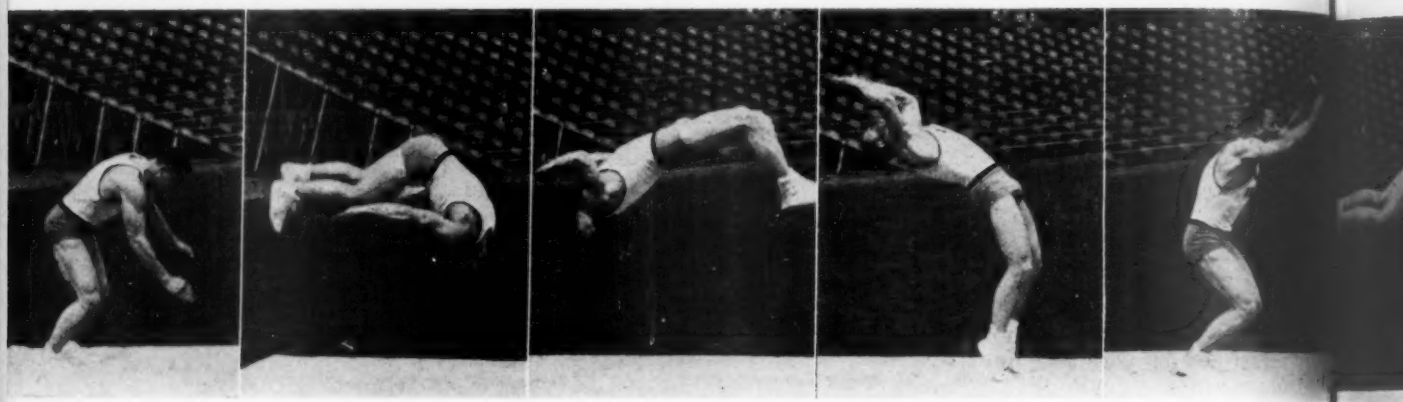
5). Then the performer's hips are raised upward sharply.

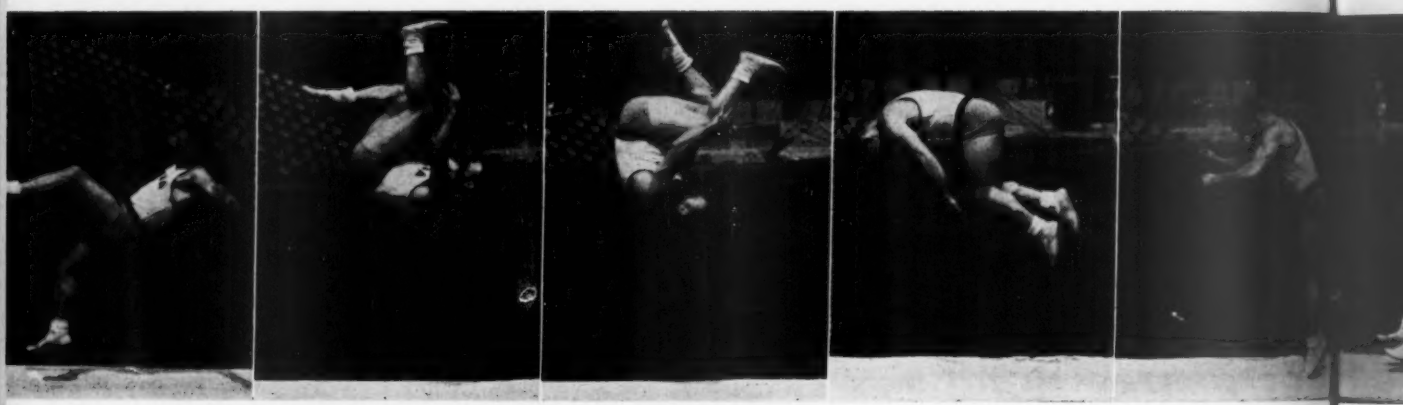
6). His legs are extended very strongly.

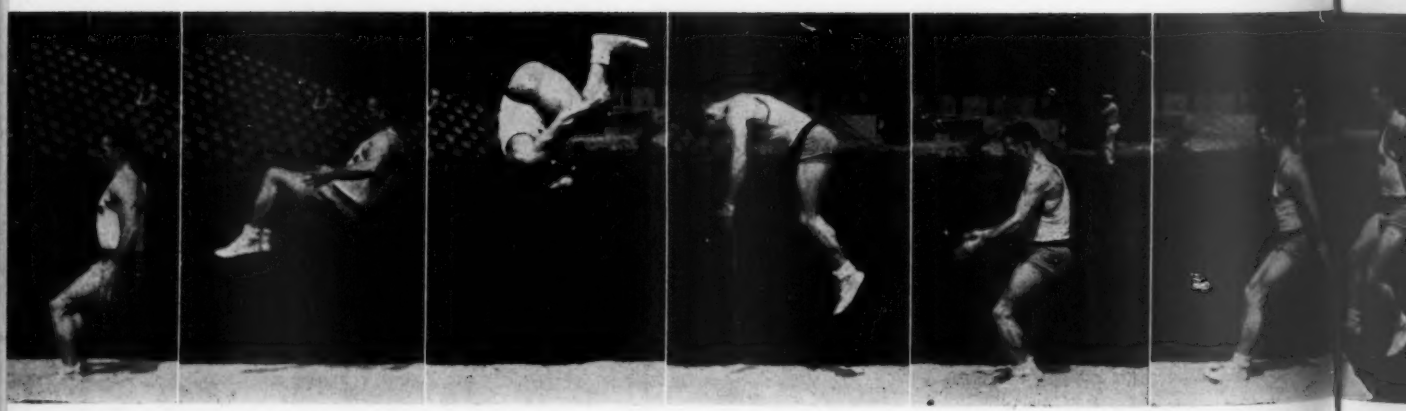
7). When the performer's body is completely free of the floor his arms are driven downward to his hips and his hips are flexed strongly.

8). As his feet come down for the landing his back is straightened again for the next bounder and the preceding actions are repeated.

Suggested Teaching Method. 1). Good back handsprings should be taught first. 2). The importance of pulling the legs way under for a good take-off and finish should be stressed. 3). The instructor should stress the arm throw as it is used in the back handspring. 4). He should also stress the need of lifting the hips on the take-off. 5). Use of hand me-







chanics, overhead mechanics, and the trampoline will speed the learner on his way.

The Running Front Somersault—With a Walkout. This stunt is used to lead up to a series of stunts or as the beginning of a routine. It permits a strong running action to be continued in the first stunt, a demonstration of forward work, and a mixed routine is shown after the round-off.

Execution. 1). The take-off should be excuted after a low, quick hurdle with a hard, sharp take-off from the floor.

2). First, the performer's arms are stretched to the rear for take-off preparation. This permits the strong forward lifting action of the arms to follow as the take-off is executed.

3). Next, the performer's hips are driven upward and a tuck is executed. His head is driven down and under.

4). The tuck is maintained until three-quarters of the somersault has been executed.

BOUNDERS

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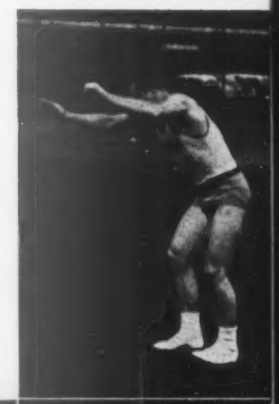

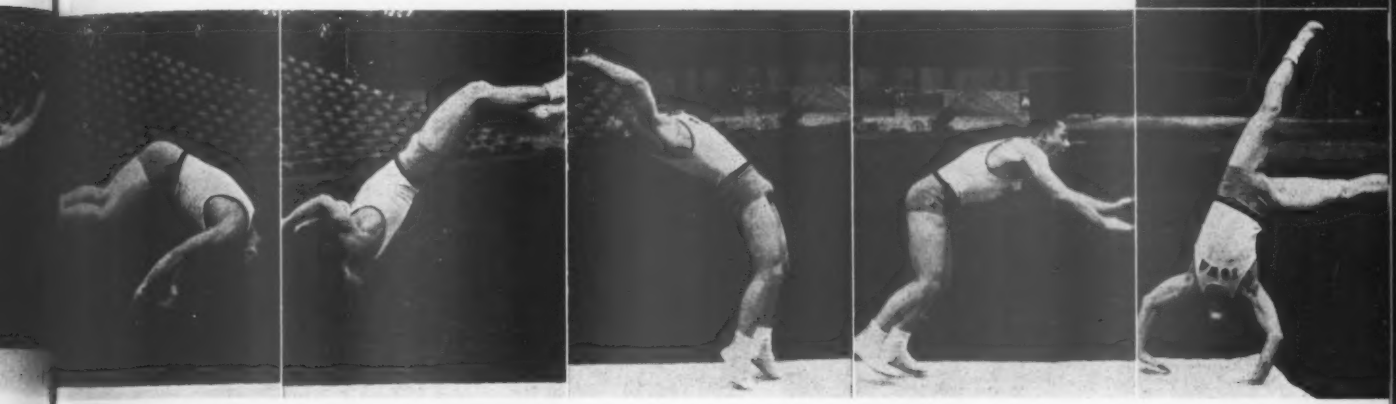

5). The performer's legs are split as the tuck is released.

6). His legs are maintained in a

RUNNING FRONT SOMERSAULT—WITH A WALKOUT

flexion until just preceding the landing. The faster the run — the faster the angular rotation, and the quicker the tuck can be opened preparatory to landing.

7). The walkout technique allows the next stunt to be executed.

Suggested Teaching Method. 1). Teach a good double foot take-off. 2). Stress the vertical take-off. Leaning forward causes too much traveling. 3). The learner should picture the hip throw as upward and over his

RUNNING FRONT SOMERSAULT—TWO-FOOT LANDING

head. 4). The performer's chest must be high on the take-off to keep the somersault high. 5). A lift by the *spotters* during the somersault will aid the learner when he is attempting to get the necessary height. 6). Opening the tuck prematurely or extending the legs or hips will slow the angular rotation down and cause the somersaulting action to stop prematurely.

The Running Front Somersault—Two-Foot Landing. The two-foot landing is the build-up stunt to the forward somersault with the split-foot landing.

Execution. 1) The take-off is from a hard, fast low hurdle step.

2). The performer's arms are flung backward, then forward and upward.

3). There is a strong upward hip lift to execute the height and then the tucking action.

4). Then the performer's arms are driven under and his hips are flexed to create as much angular rotation as possible.

5). The tuck is not released until the three-quarters point is reached.

6). Then the performer's body and legs are extended for the landing.

Suggested Teaching Method. 1). Teach the front somersault action from a trampoline or trampolette. High chest and hip lift on the take-off should be stressed. 3). Soft pads or *spotters* should be used when this stunt is being learned. 4). The instructor should caution the learner against using too long a hurdle step,

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too high a hurdle or leaning forward on the take-off.

Backward Handsprings. The single back handspring is also the *work horse* of the tumbler's routine.

Execution. 1). After the round-off the performer's arm throw is vigorously backward and upward as hard as possible. His arms help execute the handspring.

2). His head is extended backward and his eyes look over the top of his head.

3). Then his hips are lifted upward and his back is overextended strongly.

4). His knees bend the most after the round-off and extend strongly at all times upon the take-off.

5). Then his hips are flexed strongly for the finish and his back is straightened.

6). Now, the next handspring follows.

Suggested Teaching Method. 1). A beginner will not pull his feet far enough under for a good take-off. 2). The beginner will be prone to throw his arms upward and not backward. 3). As a rule, he will not fall backward and maintain his backward progress. 4). The learner will get a sore *tumbler's wrist* if he puts his hands directly under after the throw and does not put them slightly farther under than he deems necessary. 5). Often, his hips are not flexed at the finish and his spine is not straightened.

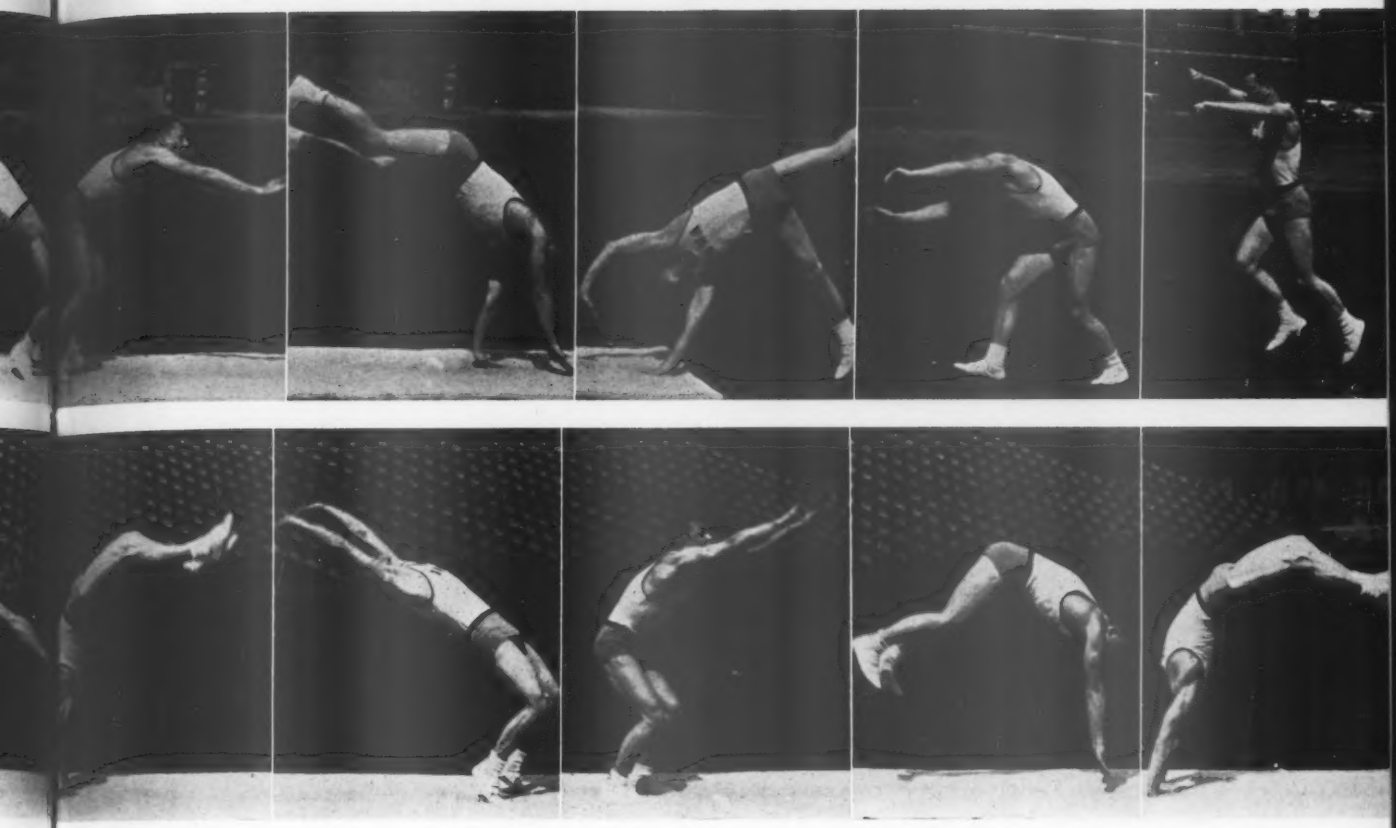
This is the third article in the series. The first appeared in the October issue and the second appeared last month. Subsequent issues will carry additional articles of the series.

BACKWARD HANDSPRINGS (FLICK-FLACKS)

From Here and There

(Continued from page 4)

lina and then worked under Jim Crowley at North Carolina Pre-Flight. Crowley, of course, used the Notre Dame system. Following this period he became acquainted with the T under "Moon" Mullins at Corpus Christi. In 1946 he assisted "Red" Drew and became acquainted with the Alabama version of the Notre Dame box. He uses the split T today . . . Last May we carried high-speed photos of Vic Seixas and Tony Trabert demonstrating some of the basic tennis strokes. Vic Seixas, while an undergraduate at North Carolina, played varsity basketball for three years.



The Cross-Country Course

IN many cases the planning of cross country courses is given insufficient consideration. Many coaches neglect this aspect of distance running because they do not recognize the importance a well-planned course plays in the coaching of a cross country team. Obviously, we do not mean to imply that all a coach has to do in order to have a successful team is to provide himself with a good course. However, the course is an important factor of distance running, and it should be given some time and thought.

The high school coach performs an important task in the development of distance running in the United States. In the beginning he is the individual who arouses the interest of the boys. Great effort should be made to get as many boys out for cross country in high school as possible. In order to get the boys out and interested the coach must consider every feasible aspect of this hill and dale sport. It is worth his while to give careful thought to the planning of the cross country course.

One thing the coach is unable to do much about is the local terrain. Some schools that are situated in large cities find it difficult to locate a satisfactory site. In many cases it is impossible to include hills. In other cities some parts of the course may run along or across streets. Some of these problems may seem unsolvable, but in the last few years schools have been overcoming many of these obstacles by locating their cross country courses at parks or golf courses.

In planning a course there are four major factors which should be considered. The first of these is safety to the runner. Running on or along roads, particularly where there is heavy traffic, should be avoided. The coach should make certain that contestants do not have to run through poison ivy or over dumps. He should try to avoid having the boys run over large rocks and deep ruts. We do not mean that every obstacle which requires a little extra effort on the part of the runner should be avoided or that the ground should be perfectly smooth. In fact, it is wise to plan a course which contains some variety as far as terrain is concerned, but it is only logical that hazards which might cause injury to the athlete should be eliminated. Although the steeplechase in the Olympics includes jumps and water holes as part of the race, the contestants do not have to run over large stones or deep ruts.

A great effort should be exerted, particularly on the part of the high school coach, to lay out a course which

By ROLLAND J. LANGERMAN

Cross Country Coach, Walled Lake, Michigan, High School

will appeal to the spectators. Arranging a course which will enable people to view the runners for more than just a moment at the start and the finish will pay off big dividends in getting boys interested in running. Laying out a course in a *clover leaf* fashion is an excellent idea, but locating terrain appropriate for this type of course is quite difficult in many instances. However, other similar ideas can be worked out which will give spectators a good view of the runners. During the past few years we have been able to work out a very satisfactory arrangement which includes two loops with a connecting path between. By starting and finishing at the same place and having the runners take each loop twice, spectators were able to watch the contestants for almost the entire two miles. Don Canham in his book, *Cross Country Techniques,* describes several other methods of laying out a cross country course. Some coaches will say that having the contestants repeat part of the course will make running too monotonous, but we have yet to see a high school runner who does not prefer spectators to monotonous running.

Another major factor to be discussed is the location of the course. The coach has very little control over location. Regardless of how well a course is planned to provide for spectator interest, it is of much less value if it is situated a long distance from the school. Finding usable land for a course near the school is unquestionably the most difficult problem. Many coaches have to decide between running on streets near the school or running on a golf course or a park a greater distance away. Fortunate is the coach who has his course within a quarter-mile of his school, and does not have to use streets.

Planning a course that provides fair competition for all runners is the fourth major factor to be investigated. Normally, this is not much of a problem, but we saw one course where it was impossible for any competitor to pass another for about one-eighth of a mile at the beginning of the race. This is an unfair situation, and courses should be arranged so that passing can be done on any part of it. A narrow start should also be avoided. The course should be arranged so it is not too complicated for the runners to follow. If it is kept in mind when the course is planned, the problem of fair competition for all can be solved very easily.

While the four basic factors are of the greatest significance in setting up a cross country course, there are several other minor points which will aid considerably in making the course more interesting for the runners and the spectators. While there does seem to be some advantage in running on the home course, some of these points will tend to make for fairer competition between teams. It is interesting to note that for the past several years a number of high schools in Michigan have been running their conference meet on a neutral course to insure fair competition.

It is best to have a wide start which will allow all competitors to begin on the same line. This is a much better arrangement than having some contestants line up behind others. In some cases the starting line may be straight or in an arc. The distance from the starting line to the first sharp turn should be about 100 yards to allow the runners to spread out before they reach the turn.

ROLLAND LANGERMAN graduated from Michigan Normal and then immediately took his master's degree at Michigan. His entire coaching career has been spent at his present location and in six years his cross country teams have ranked high in state competition. Langerman's teams have won three conference championships.

The finish should be a straightaway, and it is advisable to have it at least 100 yards long. It should be between 10 and 15 yards wide. Sharp turns or rough terrain during the finish should be avoided. It is a good idea to have the race start and finish in the same place.

Hills should be included in the course wherever possible. Again, this is something the coach has little control over, but if they are available they should be worked in. Hills add variety to the course and help reduce the monotony of distance running.

Hard surfaces such as cement roads and sidewalks should be avoided. Gravel roads are not good.

Marking a course with appropriate signs has the dual purpose of creating interest among spectators and informing the runners how far along they are in the race. Spectators like to know how far the contestants have run or how far they have to go. If the course is laid out so it is easy for the spectators to move around, signs at the half-mile mark, the mile, and the mile and one-half mark are a help on a two mile course. Marking a course in this manner keeps the runners informed how far they have progressed, thus helping to eliminate the mistake that so many runners make of *holding back* because they do not know how far they have to go. This marking will help to get the most out of each runner and should result in improved times.

A sign for the *start* and one for the *finish* would be advantageous. Even a sign showing the school's name and the distance of the course would be of interest to spectators. Placing signs around the course results in fairer competition since the runners of the opposing team will also be aware of their progress. When a course is not marked, as a rule, only the home team knows exactly how far it is to the finish. Another sportsmanlike gesture is the mailing of a map of the course, prior to the meet, to the coach of the opposing team.

Placing signs around the course has the additional advantage of marking spots where pace times can be read to the runners. These times can also be recorded and used for further study at the conclusion of the race. Cross country runners are intensely interested in their own pace times, making this an effective coaching technique since it shows the boys where they ran too slow or too fast. A well-marked course helps toward bringing about improved times.

Courses should also be marked so that runners will not get lost. Flags, directional signs, or arrows marked on the ground with lime can be used. Some courses have this line of lime run throughout the entire distance. When flags and directional signs are used they should be about five feet in height. Cutting a path with the sickle bar of a tractor provides an ideal method of marking the course when it is run in open fields. Should there be a confusing turn or a place where a runner might get off the course quite easily, it is worthwhile to place a person at this location to make sure runners stay on the course. A well-marked course promotes fairer competition since opposing runners will not *hold back* because they fear getting lost.

Most of the comments in this article thus far are suitable for courses on which small meets will be held as well as for those which will be used for large meets. When large meets are to be conducted a few adjustments are necessary. Because of the large number of entries a longer straightaway at the start is in order. In addition, the width of the finish straight-

(Continued on page 38)

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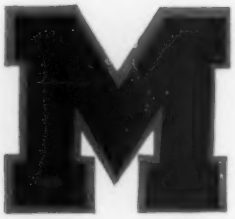

Award Point System

By JOE BLOUNT
Athletic Director, Pittsburg, Texas, High School

Award letters courtesy of Bailey and Himes, Inc.

THIS article was prepared in response to a number of letters we received from coaches and superintendents inquiring about our athletic award point system at Pittsburg High School.

Before explaining how the system works, let us tell why we adopted such a revolutionary method in regard to our letter award system.

Six years ago, in our first coaching assignment, practically every boy in the school turned out for football practice, but only a handful answered the call for basketball and track workouts. They were actually prejudiced against the latter sports, thinking they were sissy. As a result, our better boys received their football jackets and then dropped out of the major sports program, thus permitting boys who had inferior ability to represent the school in basketball and track competition.

Being poor losers, we started to work on a letter award system which would motivate our good boys toward participation in basketball and track, as well as in football. While working on the system, we thought we might as well try to solve additional problems that had cropped up in coaching. The problems that confronted us were: (1) How to encourage athletes to maintain higher scholastic averages; (2) To find a way to keep the athletes in training for the entire school year; (3) To place a greater value on the athletic award after it had been won; (4) To determine the type of award an athlete should receive; and (5) To devise a sound method of determining who shall be eligible to receive an athletic award.

How Points Are Earned

Football. There are three ways of earning points in football.

1. *Participation*: Squad members receive 12 participating points per game, whether they play or not. We play 10 games each year, thus making the maximum number of participation points to be earned 120.

2. *Minutes Played*: Players receive a point per minute for actual playing time. By playing every minute of our 10-game schedule, a player can earn 480 points. To assure accuracy in tabulating these points we have two student managers keep the information for us.

3. *Victory Points*: All players who have played in a particular game are entitled to 10 bonus points if our team wins. We do not give victory points with the idea of instilling an attitude of win-or-else in our players, but to further the element of competition.

Basketball. Chances are that a school will play more basketball games than football games, but the object is to keep the number of points that can be earned approximately even.

1. *Participation.* All members of the basketball squad are entitled to 120 participation points per season, just as they are in football. These points should be broken down and distributed according to game rather than by lump sum.

2. *Minutes Played*: Players should be allowed to earn so many points or fraction thereof for each minute of basketball played, with 480 points being the maximum number to be earned. As an example, at Pittsburg we play 12 conference basketball games, and the duration of each game is 32 minutes. By giving one and one-quarter points per minute for actual playing time, a participant can earn 480 points if he plays every minute.

3. *Victory Points*: The same procedure is used as in football. The maximum number of bonus points for victories is set at 100, and they should be distributed after each win.

Track. Since track is a little different type of sport from football and basketball, the points are handled differently.

In our section of Texas track is still considered a minor sport, and dual and triangular meets are not widespread. We never know when we will be able to secure opposition in track; therefore, in order to make certain that we will have a basis for distributing track points a rule has been set that points will be earned only at the district meet. The points could

(Continued on page 43)

JOE BLOUNT is a graduate of the University of Texas and began his coaching at Hughes Springs in the Lone Star State. He stayed at his first position until 1953, coaching both football and track. That fall he moved to his present location, winning the conference championship. He is an advocate of the short punt formation and has prepared two articles for us on this system. Blount's overall coaching record shows better than a .700 percentage.

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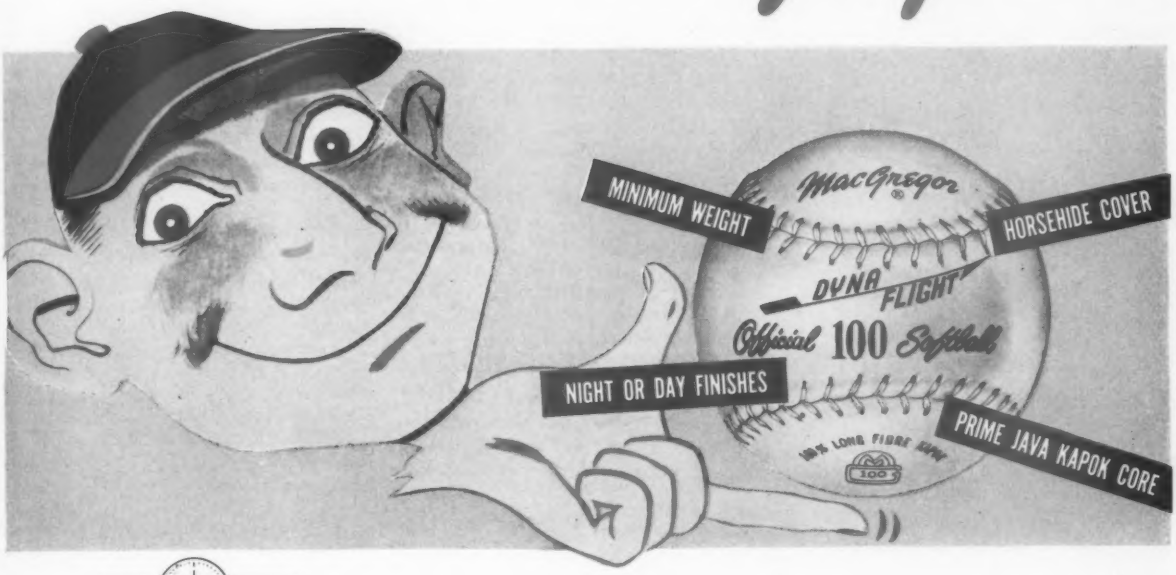

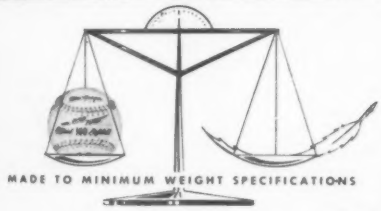

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NEW BOOKS

Curriculum Designs in Physical Education, *by Charles C. Cowell and Helen W. Hazelton. Published by Prentice-Hall, Inc., New York* 11, *N. Y. Four hundred and three pages. Price* $5.50.

The authors, both from Purdue University, have divided this textbook into three parts. The first part deals with the nature of curriculum, its function, and its problems.

The second part is a discussion of the implications of the curriculum and includes material on formulating objectives, techniques of curriculum, development and research, and evaluation of curriculum programs.

Part three deals with the organization of the physical education curriculum from nursery school through college. Each chapter discusses two grades in school, and in addition to presenting a suggested curriculum, includes a section on age characteristics for that particular age group. Each chapter also includes some questions for review and discussion, and a bibliography.

Scientific Principles of Coaching, *by John W. Bunn. Published by Prentice-Hall, Inc., New York* 11, *N. Y. Three hundred and six pages. Price* $4.95.

There has been need for a book of this type for a long time and John Bunn was the ideal person to prepare such a manuscript. In addition to his long association with athletics, he has had training as an engineer. The first part of the book presents some of the pertinent laws of physics. The principles of balance or equilibrium, the laws of motion and force, and factors affecting force such as air and water resistance are discussed.

In the second part of the book the author deals with specific athletic events and points out the application of these laws and principles to each event.

To clarify this review we are quoting a paragraph on batting to show the manner in which the author has covered the material.

"In batting by far the most important factor is that of providing force with the bat to hit the ball. Force is equal to mass times acceleration (see page 43). The mass of the batter is relatively constant. The mass of the bat is the variable quantity. The batter should choose the heaviest bat he can swing without retarding his speed of reaction. In order for the mass to be effective it must move into the ball. This means that the body should not be falling away from the ball. Striding too far locks the hip and causes the body to fall away from the plate with a consequent loss of force."

It will be seen that the author has handled a highly technical subject in such a manner that readers who do not have a knowledge of physics will have no difficulty in understanding it.

For many years coaches have taught their players the proper way to perform a certain sport maneuver without offering an explanation why. This book now puts such information at the finger tips of the coaches.

John Bunn says in the preface: "Competition in all fields of sport has developed to such a high degree that no coach or player can afford to neglect the application of scientific principles which can give him an advantage over, or at least keep him apace with, his opponent." We concur wholeheartedly.

Indiana Basketball, *by Branch McCracken. Published by Prentice-Hall, Inc., New York* 11, *N. Y. Two hundred and seven pages. Price* $3.95.

The use of 147 illustrations, most of them of the sequence type, makes this book stand out among the large number of basketball texts which have been written.

The book should be of tremendous value to the new coach for a large number of its pages are devoted to a discussion of general topics and fundamentals. A detailed weekly practice schedule is included and 20 drills for footwork, passing, dribbling, change-of-direction, change-of-pace, rebounding, finger tip control, and fast break options are diagramed and explained.

Developing Y.M.C.A. Leaders for Physical Education Service, *by Raymond J. Williams. Published by Association Press, New York* 7, *N. Y. Eighty-four large size pages. Price* $2.50.

In 1951 a manual was prepared for use by those engaged in Y.M.C.A. work. It proved so popular that the supply was sold out very soon after publication. For the past year and a half various leaders in the program worked on the revision. Many new

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additions are to be found in this edition.

Not only will this manual be readily received by those in the Y.M.C.A. program, but people in all types of physical education and recreation work will find much valuable information within its spiral-bound pages.

Weight-Lifting Handbook, *written and published by Milton H. Woolf, Allston 34, Mass. Thirty-seven large size mimeographed pages. Price* $1.50.

Because of the growing popularity of weight-lifting as training for other sports we call this pamphlet to the attention of our readers. Various body-building and conditioning exercises are described. Leverage exercises and dumbbell exercises, as well as the three competitive weight lifts, are shown and discussed.

Frank Sedgman's Winning Tennis, *by Frank Sedgman. Published by Prentice-Hall, Inc., New York 11, N. Y. One hundred and thirty-two pages. Price* $3.95.

This is an outstanding tennis book, written in a clear manner and using numerous pictures, both still and progressive action. Sedgman possesses the rare combination of being a great player and also a great teacher.

Harry Hopman, captain of the Australian Davis Cup Team, wrote the foreword and Mark Cox, Charles Hare, and Phil Howlett lent valuable assistance in preparing the material.

Cross-Country Course

(Continued from page 32)

away should probably be wider than 10 yards. Furthermore, courses which call for the runners to repeat part of the course, particularly when the race is only two miles in length, cannot be used too well because of the danger of some runners getting lapped. In meets of this type, a continuous white line throughout the entire course is recommended. However, it is essential that directional signs and flags also be used in case a last minute rain washes out the white line. An early morning snow completely covered this white line at the 1953 Michigan High School State Meet, but a jeep with a revolving brush removed the snow and left a path of green grass about six feet wide around the entire course. For large meets a chute at the finish is a necessity. Even a small chute for dual or triangular meets works very satisfactorily.

Planning a course and doing all the manual labor connected with it requires considerable time and effort. This work usually falls upon the cross country coach who is busy coaching the team and in many cases will not have too much time to devote to it. However, we feel that the coach who will devote his time to planning a good course will be rewarded with larger turnouts of spectators and with greater interest on the part of his runners.

Effects of Training

(Continued from page 16)

or regression will in any way affect the function of the heart valves and cause murmurs or leakage.

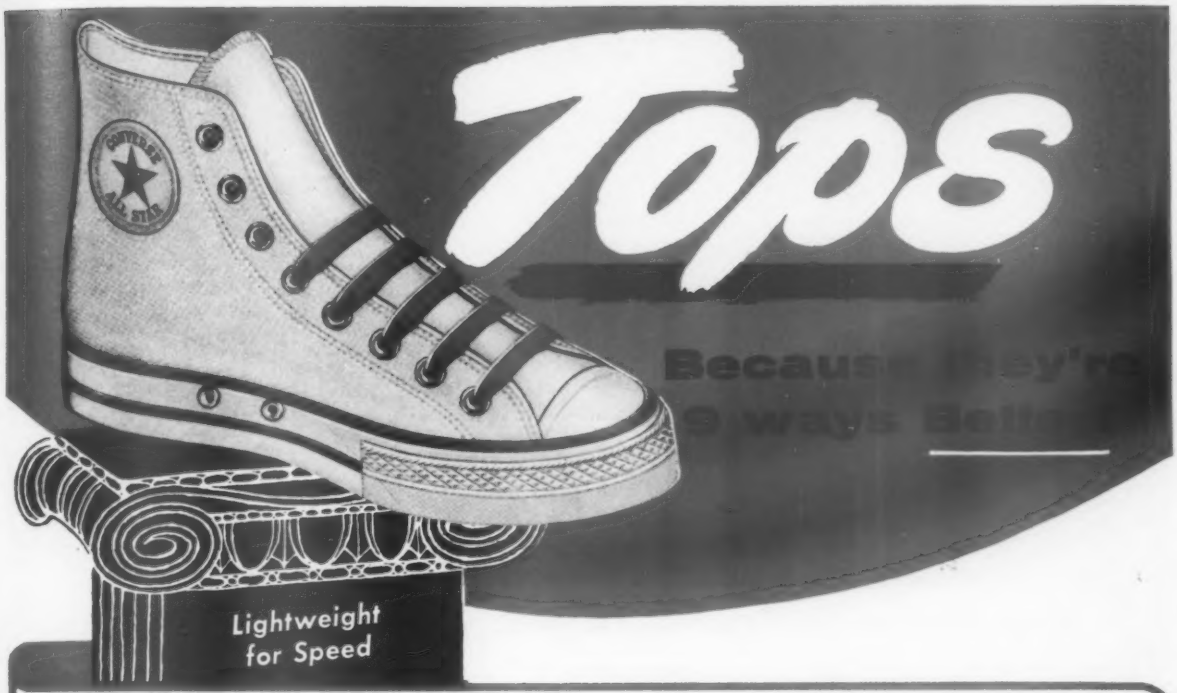
During an infectious illness, such as rheumatic fever, it is important to remember that injury can be done to the heart — especially the valves —if an extreme amount of stress is placed upon them. Thus, vigorous exercise should be restricted. This restriction should also prevail in many pathological conditions of the heart.

Most physiologists now agree it is impossible to injure a normal heart through exercise.

Heart Rate

The heart rate decreases as a result of training. Endurance training also seems to be the most effective in decreasing heart rate. The heart is supplied with two sets of nerves—the vagus nerves and the sympathetic nerve. When the vagus nerves are stimulated there is a decrease in heart rate and when the sympathetic nerve is stimulated there is an increase. The rate decrease caused by training is believed to be due to an increased vagal tone. The reason for this rate decrease is not completely understood.

A decreased rate permits a greater period of relaxation, during which time venous blood can fill the heart to a greater extent. The greater the venous return during this phase, the greater the volume of blood ejected with each heart beat. This volume is referred to as *stroke volume*. As a result of this decreased rate and increased stroke volume the heart can



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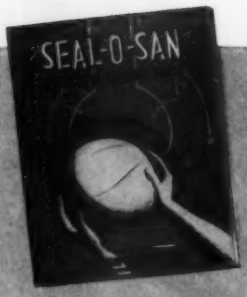

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use less energy to perform a given amount of work.

The heart is similar to the fuel pump in a car in that it pumps the blood which carries the fuel of muscular contraction (glucose) and oxygen, which is comparable to the gasoline in a car, to the muscles, which can be compared to the pistons. If the volume of gasoline from the fuel pump is decreased, the speed of the car is diminished. If the volume of blood from the heart — known as cardiac output — is decreased, the muscles would have to diminish their activity. Circulo-respiratory endurance is largely dependent upon the cardiac output of the heart and the cardiac output is definitely increased by training.

Blood Pressure

The effect of training upon blood pressure is varied and generally does not show any marked effect upon resting blood pressure. Some studies report an increase in the diastolic pressure. During exercise an increase in blood pressure is desirable to facilitate exchange of oxygen, carbon dioxide, glucose, and metabolites. In the case of untrained persons during exhaustive exercise the blood pressure frequently drops below the resting level and may force cessation of activity. Marathon runners who finish high in their races have been found to have slightly elevated blood pressures immediately after the race. It is probable that the blood pressure was elevated during the entire race. Runners who have been forced to drop from the race due to exhaustion have been found to have blood pressure levels below their resting levels.

Respiratory Efficiency

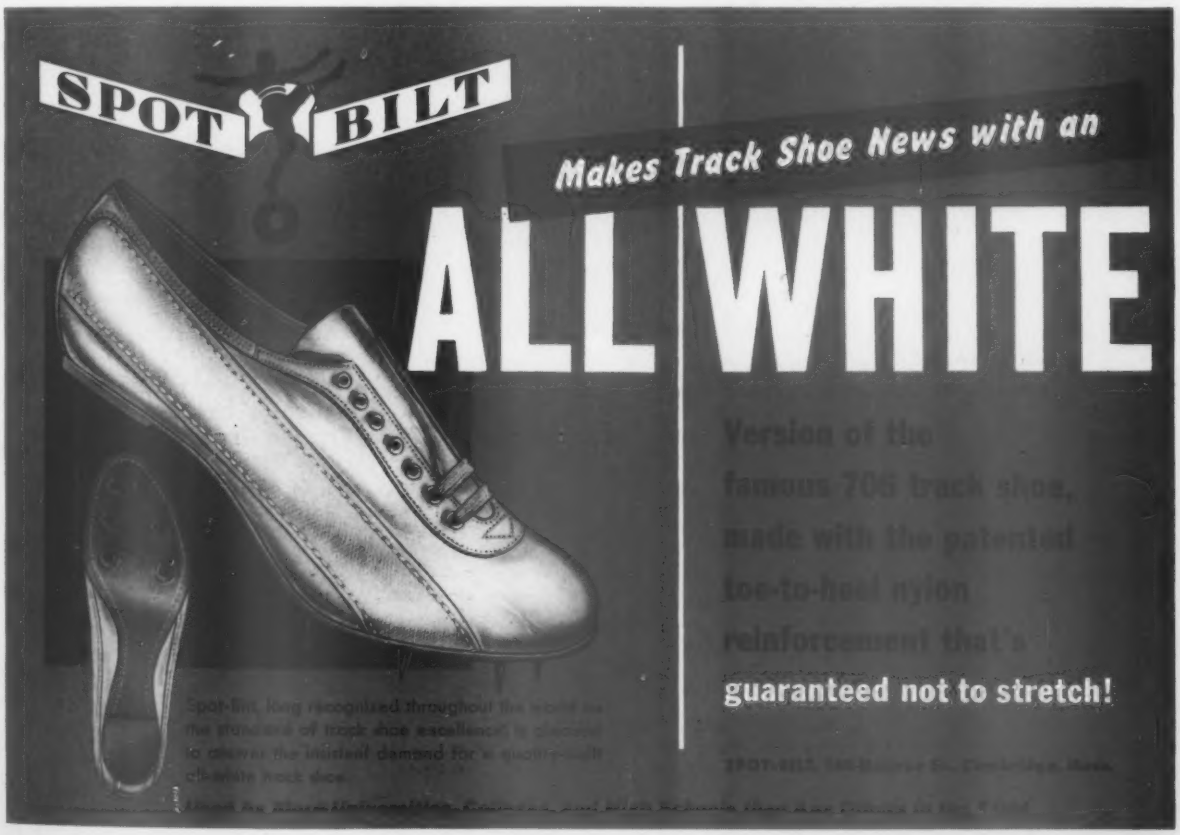
Another big factor in circulo-respiratory endurance is, as the term implies, respiratory efficiency. A common misconception is that respiratory efficiency can be measured by measuring vital lung capacity, which is the greatest volume of air that can be expelled in a single exhalation after a maximum inhalation. Although vital lung capacity does increase somewhat with training, the main increase in respiratory efficiency is believed to be due to changes in the composition of the blood and in the alveoli — the small air sacs in the lungs where the oxygen and the carbon dioxide are exchanged between the air in the lungs and the blood in the pulmonary capillaries. As a result of training, the alveoli in animals have been reported to develop partitions which increase the amount of surface area exposed to the air in the lungs, thereby increasing the rate of oxygen exchange.[4]

The increase in vital lung capacity, which is apparent, is thought to be the result of increased strength of the respiratory muscles and an increase in the size of some of the alveoli, which during rest or mild exercise are not used. There is a decrease in a trained person's breathing rate and an increase in ventilation depth. During exercise the trained person can handle a greater volume of air and more oxygen can be absorbed by the lungs into the blood stream.

Level of Blood Sugar

The resting level of sugar in the blood is not affected appreciably by training. During rest the normal level of blood sugar is 70 to 100 mgs. per milliliters of blood. As the blood sugar decreases during exercise, adrenalin is released by the suprarenal glands causing the release of sugar

[4]McCloy, Charles H., *An Outline of Physiology of Exercise,* Mimeographed Pamphlet, State University of Iowa, 1947, pp. 9.



from the liver. During exhaustive exercise the level of blood sugar may drop below the resting level. When this level drops too low – a condition referred to as hypoglycemia exists – the person must diminish activity due to blood sugar exhaustion. Marathon runners who have had to drop out of a race due to exhaustion have been found generally to have had extremely low levels of blood sugar, while the runners who finished high in the race were found to have had at least normal levels of blood sugar. In this respect the level of blood sugar follows the trend of the blood pressure described previously. This ability of the athlete to maintain high levels of blood sugar during exhaustive exercise is believed to be related to the ability to store more sugar in the muscles and in the liver.

Red Blood Cells

The main method of carrying oxygen is in the blood via the hemoglobin in the red blood cells (erythrocytes). The oxygen carrying ability of the blood can be increased by increasing the number of red blood cells and this is exactly what occurs during training. The red blood cells are produced in the red bone marrow and the stimulus to their production is a low level of oxygen (anoxia) in the blood going to that area. This condition of anoxia is caused by vigorous exercise and it is only as a result of exercise of this type that any increase in red blood cell count occurs. This increase has been noticed after less than a month's training.

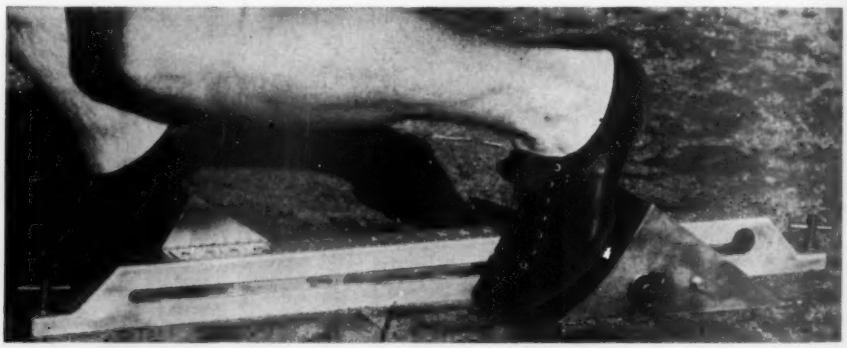
The capacity for absorbing and carrying large amounts of oxygen during periods of extreme exertion appears to be one of the outstanding characteristics of well-trained athletes. A trained athlete can incur greater levels of oxygen debt, thereby permitting him to exercise a longer period of time. This ability is believed to be associated with the alkali reserve.

Alkali Reserve and Blood pH

During exercise carbonic acid and lactic acid (the by-product of the breakdown of glucose) enter the blood stream and tend to lower the alkalinity of the blood. The normal range of pH (acidity or alkalinity) for the blood is 7.4 to 7.8 (slightly alkaline). The addition of these acids to the blood would quickly upset the pH if it were not for the neutralizing effects of the buffers in the blood. Acids in the blood – other than carbonic acid which is buffered by hemoglobin – are buffered in the main by bicarbonate in the blood which is referred to as the *alkali reserve*. A trained person is able to maintain a higher pH level (more alkaline) during exercise and this condition may be related to an increased alkali reserve. Some studies report increases in the level of alkali reserve during training while others report no change. Since a trained person is capable of creating higher levels of blood lactate (buffered lactic acid), it follows that he can continue exercising a longer period of time than can a person who is able to tolerate only lower levels. This ability to tolerate high levels of blood lactate is not fully understood.

Longevity of Athletes

Does training decrease or increase a person's life expectancy? Some persons have reasoned that athletes are probably inherently superior physically than the average person and, thus, might be expected to have a somewhat greater life expectancy – unless, of course, training or athletics is detrimental to one's longevity. One study of almost 500 athletes who graduated from college between the



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years of 1890 and 1905 resulted in findings of a lower mortality rate than that found among insured persons who were free from illnesses. Similar studies have shown either at least a normal or greater than normal life expectancy for athletes. These findings would seem to indicate that the frequently quoted expression *athletes die young* is fallacious.

How Long Do Chronic Effects Last

It is important to remember that the changes which have been discussed occur only after a somewhat extended program of repetitive, vigorous exercise. Some changes may begin almost immediately, while others are not noticed for several months. The skill achieved through training may be retained for a lifetime but it is doubtful if many of the other physiological changes are retained that long. The return to normal of heart size after cessation of training is practically complete in less than six weeks time, according to Herxheimer.[5] Other researchers estimate that it takes much longer. More research appears to be needed in the area of the determination of the length of time the chronic effects of training endure. From the meager work which has been accomplished in this area, however, it does appear that, after the cessation of training, most of the changes which have occurred regress to normal.

[5]Cureton, op. cit. p. 131.

Award Point System

(Continued from page 34)

be broken down and distributed after practice meets in sections of the country where track is more predominant.

Track points are based on the following criteria:

1. *Participation*: One hundred twenty points are awarded to all members of the track squad.
2. *Entering Events*: For each event entered at the district meet a participant is given 20 points.
3. *Placing*: For placing in each event participants receive points as follows: First Place . . . 78 points. Second Place . . . 47 points. Third Place . . . 28 points. Fourth Place . . . 17 points.

Scholastic points are distributed throughout the school year to athletes who are actively engaged in our sports program. Scholastic points stop once an athlete drops out of the major sports program.

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For further information see service Coupon, page 56

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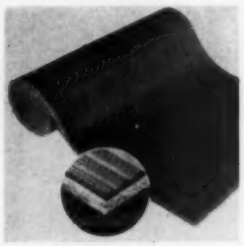
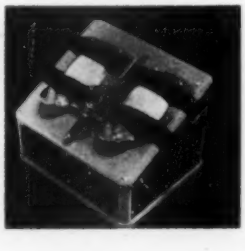
SOFT, strong kangaroo skin and "Rite-weight" construction feature these sprint type baseball shoes. The shoes are built on Wilson's "Action-Fast" design which reduces foot fatigue by conforming to the naturally level contour of the foot. The Goodyear welt method is used in attaching the uppers to the sole. Frabic-covered cushioned sock lining, water-resistant counters, and full leather insoles are other features of this outstanding shoe, Wilson Sporting Goods Co., 2037 N. Campbell Ave., Chicago 47, Ill.



THIS matting contains a backing of one-quarter inch sponge rubber. The surface is live rubber and has non-skid qualities. It will not slip, slide or creep. The sponge rubber backing is bonded to the front and will withstand long, rough wear. It is particularly desirable for gymnasium work where long surfaces of matting are required because it comes in lengths up to 60'. The widths are 18 or 36". Flexi-Mat Corp., 2249 Calumet Ave., Chicago 16, Ill.



THE hit of the recent football coaches convention was this foot massage machine. Sturdy rubber diaphragms gently flex the feet, increasing the blood circulation not only through the legs, but throughout the body. The machine will find ready acceptance in training rooms where the problem is to create circulation when exercise or massage is prohibited due to painful bruises or muscle strains. Auburn Health Machines Corp., 226 W. Genesee St., Syracuse 2, N. Y.

THE Jumpmaster is a new piece of gymnasium apparatus which is designed for use on all school levels. Its purpose is to motivate, increase, and measure jumping skills. The cast base is fitted with non-marking rubber feet. Its lightweight steel standard is telescoped and calibrated from 6' to 11'. The leather target suspended from the horizontal rod, simulates the bottom half of a basketball. This apparatus appeals to coaches because it helps students attain competence on rebounds, tip-ins, and jump balls. Jumpmaster Company, Calumet, Iowa.

In our school system scholastic reports are released every six weeks. Football is in process the first two periods of six weeks, basketball occupies the third and fourth periods of six weeks, and track, having a short season in Texas high schools, includes only one period of six weeks, the fifth period. To make it possible to earn as many scholastic points in track as in the other two sports, the grade points for the fifth period of six weeks are doubled.

Since most athletes take four subjects in high school we base our points on that number of subjects. If an athlete is taking five subjects, we count the four subjects in which he makes the best grades. If he is taking three subjects, we take a general average for the fourth subject.

If an athlete is actively engaged in our sports program, he will accumulate points scholastically each six weeks in the following manner: A . . . 23 points. B . . . 14 points. C . . . 9 points. D . . . 0 points.

When Points Double

If one of our teams wins the district title and advances into the state play-offs, the points for that particular contest are doubled. For instance, in bi-district football competition a boy will receive 24 participation points, two points per minute for actual playing time, and if the team wins, he will receive 20 bonus points.

The same procedure is followed in basketball and track.

Some coaches have asked that in the event the entire 120 participation points are doubled, whether or not a track participant advances to the next highest meet. No, we do not double the entire 120 points. This procedure would place too great a premium on participation points in track. We have no way of breaking these points down and distributing them by game as has been done in football and basketball. They are awarded in a lump sum to all track men who are on the squad at the time of the district meet. To maintain an even balance in regard to our point distribution we double only 12 points, the same amount we would double if our football team advanced to bi-district play.

Awards

Athletes who have accumulated 900 points receive their athletic awards during the month of May.

The top eight athletes in our athletic award point standings are given

a reversible jacket which costs $15.00. Fifteen dollars is the maximum that may be spent on athletic awards in Texas.

Athletes finishing in positions nine through sixteen in our standings are awarded a lined jacket. All athletes with 900 points or more who are below the sixteenth position are given lightweight sweaters.

The number of letter men will vary from year to year, depending on their athletic success, athletic participation, and scholastic ability.

Effects of Warm-up

(Continued from page 10)

the first experiment ran from 0.64 to 0.81 seconds faster (on the average) under optimum than under minimum conditions in the 130-yard trials, and their times following each pattern correlated in the range between 0.767 and 0.959, all coefficients being highly reliable in relation to their probable errors. In addition, the significance ratios, ranging from 14.36 to 52.16, were found to be well above the one-tenth of 1 per cent level of confidence. Thus, it is interpreted that significantly speedier performances occurred when the optimum warm-up routine was observed.

Subjects in the second portion of the study performed between 0.39 and 0.94 seconds faster under optimum conditions than under minimum conditions in the 100-yard runs, and their times correlated from 0.873 to 0.981. Again, all of the coefficients of correlation proved to be rather high in comparison with their probable errors. The significance ratios for the group in question ranged from 17.28 to 86.16 and, therefore, were all above the one-tenth of 1 per cent level of confidence. A complete summary of the means and the differences between them is found in Table 2. Due to lack of space only the first 16 are tabulated.

LANE BLANK graduated from UCLA after competing in cross-country. While serving in the air force he competed in numerous track meets. After his service in the air force he assisted "Ducky" Drake in both track and training at his alma mater. He coaches both football and basketball and teaches academic as well as physical education classes.

THE newest addition to the Dedoes line of batting machines throws regulation baseballs or soft regulation weight and size balls for indoor use. Tennis balls or inexpensive sponge rubber balls may also be used. This machine, with the other units of the line which throw smaller than regulation balls, permits the company to serve everyone in baseball from the single individual to the largest professional club. Dedoes Industries, 2070 W. Eleven Mile Road, Berkley, Mich.

THE "Safe-T-Vue Face Protector" is engineered so that it can be easily and speedily attached to the helmet. Through the "Jet-Snap" arrangement the face protector can be attached or removed in a matter of seconds right on the field of play. All "Rawlings Head Cushion" helmets are now pre-drilled so they can be readily fitted with the "Jet-Snap S-T-V Face Protector." Rawlings Sporting Goods Co., 2307 Lucas Ave., St. Louis 3, Mo.

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THIS Sport Model blank cartridge revolver has all the character and richness of a fine revolver yet it is very reasonably priced at $10.95. It is completely safe and fires 22 caliber blanks. The length of the barrel is 2" and the gun weighs only 10 ounces. It has a blue finish and blade front sights. When the revolver is to be used for starting it is engineered to give a loud start. Cartridges $1.50 per 100. Godfrey Import Corp., 277 Broadway, New York.

THE new line of Spalding football shoes features an oxford. Goodyear welt construction is employed on the better grade shoes which are equipped with removable game cleats. These cleats can be replaced with nylon or aluminum cleats. Also in the new line are sprint models with extra high uppers and flexible shanks. A. G. Spalding and Bros., 161 Sixth Ave., New York 13, N. Y.

JIM-KOTE LUMX is a new floor sealer which will not darken with age or after numerous applications. It is made of plasticized resins in which little oxidation takes place — oxidation being the cause for floors becoming darker. It is alkali proof, waterproof, and has a high luster. It is easy to apply and maintain. Information may be secured by using the Service Coupon or writing Selig Co., 338 Marietta St., N. W., Atlanta 1, Ga.

Conclusions: The conclusions derived from this experimental study were as follows:

1. There is good reason to support the traditional contention of most authorities that an extensive warm-up is of benefit to performance in sprinting.

2. For the groups investigated, there was no apparent difference between the effect of the warm-up routines upon experienced and non-experienced individuals.

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Hurdling

(Continued from page 9)

weight. The measurements of the rocker base are 24 inches by five inches. To simplify the construction of the rocker base, cut a pattern from a piece of paper or cardboard using the dimensions mentioned previously. Start to curve the ends of the rocker pattern three inches from the center and complete the curve one inch from the top surface of the rocker. This procedure will make for better balance and will prevent any lean. File the surface of the rocker at its base to allow it to swing freely while in use. Attach the lower uprights at the center of the rocker one and one-half inches from the lower surface of the rocker with two one-quarter inch bolts or three-sixteenths by one and one-half inch wood screws.

5. For the lower cross braces we used five-eighths inch dowel pins. The dowel pins are each 36 inches in length. Insert and glue the lower dowel pin in a five-eighths inch hole that is drilled eight inches from the bottom of the lower upright. The upper cross brace is inserted four inches higher. The purpose of the two braces is to prevent the hurdle from leaning from side to side.

6. Two braces are screwed on either side of the lower upright on to the rocker. The measurements are two inches by 38 inches. Secure the braces with two three-sixteenths inch by one and one-half inch wood screws.

7. To complete the assembly of the rocker hurdle, use two bolts with wing nuts, size five-sixteenths by two and three-quarters, to bring the upper and lower uprights together. It is advisable to use washers on the inner and outer sides of the joint to prevent gouging the wood as a result of frequent height adjustment. After using the hurdle on a newly polished gymnasium floor, we found it advisable to tack a portion of a bicycle tire to the rocker to increase its stability and to prevent marking the floor.

Using the Hurdle

During early season practices in the gymnasium, we adjusted the hurdles to about 22 inches in height. It has been our experience that starting the elemenetary and junior high school boys at this low height builds up their courage and enthusiasm for hurdling. As the boys' form and speed improved, the height of the hurdle was raised without calling it to their

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attention. It is amazing to find that a great number of the boys are unaware of the change. We sincerely believe that more success can be obtained from teaching form and speed at lower heights. At least, it has proved so in our case.

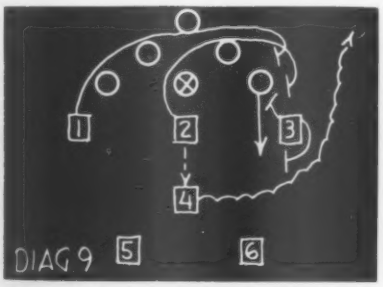
Since this type of rocker hurdle is light and easily moved, it worked to great advantage whenever and wherever moving was essential. These hurdles are especially good for relays in physical education classes and they aid the coach in spotting boys who may make good hurdlers. Because of the simplified obstacle, the height adjustment, and the novelty of this hurdle, we believe that it not only makes hurdling easier for the boys to master, but also helps to develop good form and style in a relatively short period of time.

Six-Man

(Continued from page 24)

section of the wall. The right end, our No. 3 man, holds the offensive left end at the line of scrimmage as long as possible and then he loops to the right and attempts to get in a position to block this end again as he moves for the ball-carrier.

On any punt which passes beyond the No. 4 back, No. 3 breaks to his right and helps lead the play.



If No. 5 receives the punt, he slants for the right side and follows No. 6, who leads the play along with No. 4.

In the case of a short punt which No. 4 can handle safely, he breaks immediately for the right and attempts to get behind the blocking wall set up by the three linemen. Diagram 9 shows this play.

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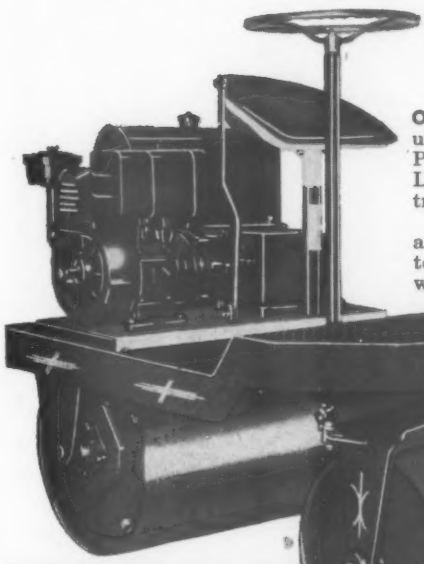

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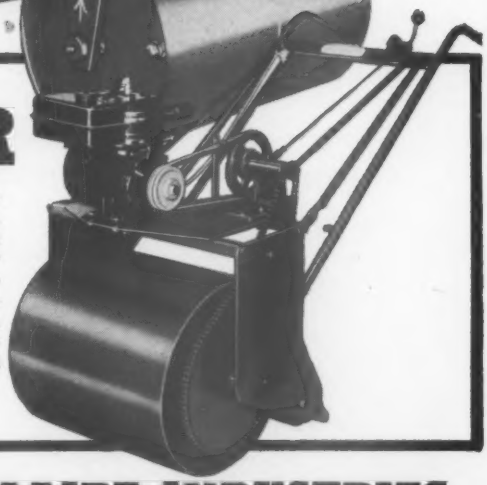

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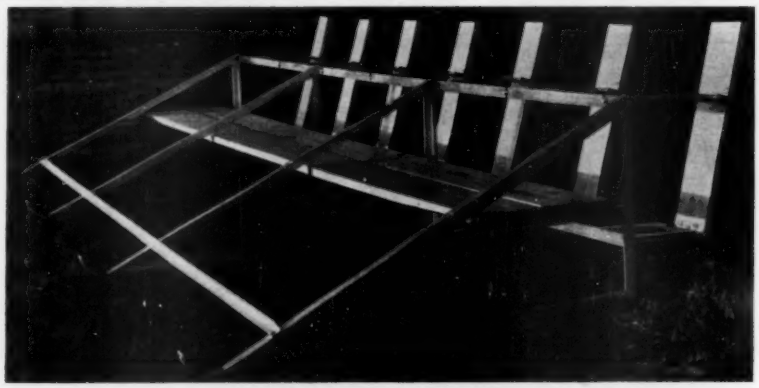

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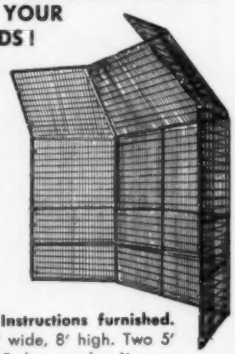

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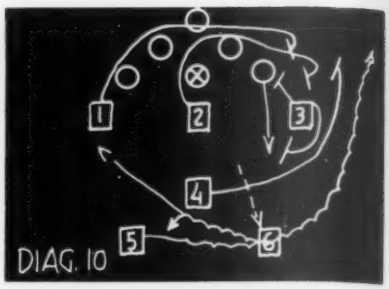


A deceptive maneuver when the punt is received by No. 6 is shown in Diagram 10. The three linemen and the short back carry out their original assignments. Number 6 starts to his left and hands off to No. 5, who again attempts to get behind his wall of blockers to the right. Number 6 must carry out the fake in order to make the play effective.

These various returns were shown run to one side only. These plays can be run to either side and will prove more effective if they are run that way. If it is set for a run to one side, the defense will naturally be in excellent position to stop any play.

A coach should not expect his players to return every kick-off or punt for a touchdown. However, good organization should produce longer runbacks. In the past few years we have returned several kicks all the way and believe these were due to our planning. Even though one of the returns may result in a touchdown only once during the season, that touchdown may mean the game and even a championship. It is the little things which are often ignored in crowded practice sessions that make the difference between champions and also-rans.

Track Meet

(Continued from page 11)

officials is self-evident and very real.

Perhaps largely because of the specter of the sore arm, the javelin throw is an event which invariably drags as athletes delay and procrastinate over taking their trials. One of the most repeated of public address system announcements is the plea for javelin throwers to report to the throwing area.

Adequate areas, in terms of space and safety features, are difficult to provide, and often the event is held far from the view of the spectators. Sometimes games committees schedule this event at a time prior to the scheduled meet hour, or as the final

The Hour-and-a-Half Track Meet
Order of Events

Event No.	Time	Event
No. 1	2:00	Pole Vault
No. 2	2:00	Shot Put
No. 3	2:00	High Jump
No. 4	2:00	*Broad Jump
No. 5	Immediately after shot put	Discus
No. 6	2:30	160-Yd. Dash
No. 7	2:35	One Mile Run
No. 8	2:45	440-Yd. Dash
No. 9	3:00	120-Yd. Hurdles
No. 10	3:15	880-Yd. Run
No. 11	3:25	Mile Relay

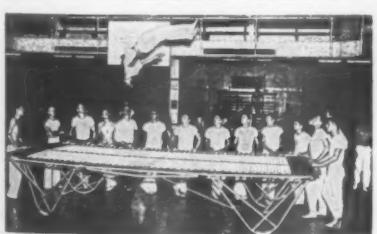
*Broad jump trials may be taken at any time during the first 45 minutes. Broad jump finals begin at 2:45.

field contest on the program, rather than placing it according to the NCAA order of events. Such disregard of the rules on the part of home coaches is not uncommon, and is often a source of resentment, or at least of irritation, to visiting coaches and teams.

All in all, the staging of the javelin throw introduces so many problems that its elimination from the dual meet program would cause little protest from most coaches. In a reduced program it is a logical event to eliminate.

The Streamlined Program

The changes proposed will cut the running time of the typical dual meet to an hour-and-half, or less, depending upon the organizational skill of the games committee. This saving of time plus the elimination of events which are routinely dull, repetitious, or difficult to stage, might well result in a combination which will provide a more attractive exhibition for the



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spectator. The suggested shortened meet excludes one sprint, one distance race, one hurdle event, and the javelin throw, but still measures the same range of skills and characteristics as does the current NCAA order. The order of events would be, through necessity, somewhat different than at present (see the accompanying suggested program). Some distinct advantages for the competing athletes are actually provided by the suggested changes.

Track and field is deeply rooted in tradition, and thus is slow to accept modification. Changes of events making up the standard dual meet program, however, have ample precedent, and in the face of long-continued disinterest on the part of sports fans, a new approach in organization is certainly necessary. We feel that the hour-and-a-half track meet is worthy of serious consideration.

(Mr. Miller's article, "Organizing and Conducting the Hour-and-a-Half Track Meet," will appear in the March issue).

Speedy Recovery

(Continude from page 12)

be used with moistened turkish towels, thus producing moist heat. Use of moist heat may also prevent some lamps from causing burns and blisters.

Short and long wave machines (electrotherapy, a form of heat through conversion) are very valuable. The use of these machines should be closely supervised and their use should be prescribed by the family or team physician.

The methods used in the application of heat varies. Short, intense periods of heat have been used successfully. These periods of intense heat should be carefully supervised to prevent overheating and they are generally used once or possibly twice daily.

Long, low periods of heat are being used more and more. These periods of low heat should be given several times daily. Constant application of heat with the use of an automatic electric heating pad or applications of counter irritants (analgesic balm, etc.) have shown good results.

6. Massage can move a great deal of blood if it is administered correctly. Light stroking is very effective. This stroking should be toward the heart. Then massage should be started above the injured area. Massage should then be continued with the stroking starting well below the injured area, easing up over the injured area, and then finishing the stroke above the injured area.

Massage is contraindicated directly over the injured area, areas that have infected tissues, and areas where there is damage to the periosteum (covering of the bone).

There are other forms of massage which are valuable, but these also require knowledge and skill in administering.

7. Exercise is one of the most valuable forms of treatment when it is used at the proper time and in the right amount.

Contraction of muscles serves as a pumping or milking action to increase circulation of blood.

The strength and hypertrophy (increase in muscle size) which is so essential for the efficient functioning of muscles and for the support of joints is aided greatly through exercise.

Muscular endurance is increased through exercise. Fatigue is thereby postponed, reaction time is better, and susceptibility to further injury is decreased.

The type of exercise should be selected for the specific injury. After the danger of hemorrhaging is past and preferably after heat and massage have been applied, exercise should be prescribed by the family or team physician, and supervised by parent, coach, or physical educator.

There are different schools of thought concerning the use of exercise following injuries. In the treatment of sprains one group believes that there should be non-weight bearing or limited activity for several days after injury.

The other group believes that regular exercise is beneficial as long as supportive measures are used and the further stretching of ligaments (strong fibrous bands supporting joints) is prevented.

In strains care must be taken not to start exercising too soon or too strenuously in order to permit the partial or completely torn muscle fibers to heal enough to withstand contraction.

In contusions (bruises) progressive exercise is generally indicated unless there is possible damage to the periosteum (the fibrous membrane surrounding a bone). Bone cells may collect in too large amounts and diffuse into surrounding soft tissues if

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the periosteum is irritated and damaged.

In dislocations, immobilization and supportive measures are followed by heat, massage, and exercise.

After the exercise program has been prescribed, the overload principle should be followed if the greatest benefits are to be derived from exercise.

The overload principle is the gradual increase of resistance to the individual's optimum.

The number of repetitions of the exercises should be increased.

The time element should be varied. Increasing the number of repetitions into a shorter space of time will tend to increase endurance. Decreasing the number of repetitions over a longer period of time will tend to increase strength.

Resistance should be increased by tension devices, such as springs; mechanical machines, such as rowing machines; and weights, such as sand bags and barbells.

The types of exercise should also be progressive. When passive exercise is used the injured person remains relaxed and the operator performs the movement desired. When active assistive exercise is used the injured person tried movement but it was found necessary for the operator to assist in the movement. In using free or active exercise the injured person performs the desired exercise voluntarily and on his own power. In active resistive exercise the injured person adds resistance of varied types.

8. Supportive measures are necessary to aid in recovery, but these measures are especially important in order to prevent recurrent damage to injured areas.

It takes anywhere from six weeks to three months for stretched ligaments to shorten and stabilize a sprained joint.

The proper use of tension bandages should be learned. Tape adds additional support to these tension bandages when needed.

The taping of common injuries, based on knowledge of anatomical structure and common sense, is indispensable. Taping also requires a great deal of practice. Skill in taping will save many joints from chronic sprains and dislocations.

All eight measures must enter into any intelligent routine for prevention and care of athletic injuries. The practice of this routine by parents, coaches, and physical educators, under the guidance of a physician, should be very beneficial to all concerned.

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Offensive Play Situations

(Continued from page 6)

plays — the safe squeeze, and the suicide squeeze. In the safe squeeze the runner on third base takes as long a lead as possible and does not break for the plate until the bunted ball is on its downward flight from the bat. The Chicago White Sox used this type of play with amazing success during the 1954 season. The safe squeeze is employed to the best advantage in the early stages of a game and to build up a lead.

In the suicide squeeze play the runner on third base breaks for the plate as the pitcher's arm starts forward to release the ball for the pitch. Thus, the runner has a flying start toward home plate while the pitched ball is approaching the batter. The batter must bunt the ball regardless of where the pitch is aimed since a miss will probably result in an out by the incoming baserunner. This type of bunt is usually used in the late stages of a game and as a last resort when other methods to score have failed. It is attempted almost exclusively with one man out.

The double squeeze is attempted with runners on second and third when there is one out. In this situation an attempt may be made to score both runners on a suicide squeeze play. As the pitcher starts his wind-up, the runner on second breaks for third trying to get as early a start as possible, thus bringing himself as close to third base as he can. As the ball is bunted, this runner rounds third base and continues on to the plate. The ball should be bunted to the first base side in order to make the second baseman handle the out at first base. In this way the element of surprise is used against the second baseman who is concerned with covering first base.

Bunt for a Base Hit

The bunt for the base hit is a surprise maneuver. It can be used against slow third basemen, slow fielding pitchers, and third basemen who play deep or on *a dime*. It should be attempted by fast runners, and is generally in order when the bases are empty. It is also tried when the offensive team has difficulty in hitting the opposing pitcher.

The push or drag bunt is an offensive weapon which is based on creating an element of confusion between the pitcher, the first baseman, and the second baseman. Speed is necessary to the success of the bunter. The push or drag bunt should not be practiced or attempted by players who are slow on their feet.

The Straight Steal

Many offensive play situations involve baserunning. The straight steal of second base is designed to move a baserunner into a scoring position. In professional baseball the straight steal is usually attempted with two outs, but in high school baseball many additional opportunities for the steal are presented due to the throwing inaccuracy of catchers. Inexperienced pitchers also enhance the successful possibilities of the steal. Actually, on the steal of second base, the coach is gambling an out against a possible run on one hit.

The best time to steal third base is after one player is out. If the steal is successful, the offensive team is in a position to make a choice of its offensive strategy rather than resort to hitting straight away.

The Double Steal

The double steal is employed to the best advantage with runners on first and third base and when there are two outs. In this situation the coach is gambling a run against an out which is good percentage baseball, particularly at the high school level, due to the disadvantages encountered by the defense in handling the ball. When there are runners on first and second the best time for the double steal comes after one out. It is important to get a runner to third base with one out. Should the runner be thrown out, one runner remains in a scoring position (second base) with two outs.

Steal of Home

The steal of home is a daring surprise maneuver which is employed when one run is needed to win a

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game, or when a pitcher indicates carelessness in watching the runner on third base. In high school baseball the steal of home can be successful quite often. Its possibilities for success are lessened as we go into the higher classifications of baseball.

Delayed Steals

Delayed steals, both of the single and the double variety, depend upon clever baserunners who possess both speed and the experience to adapt themselves to proper split-second timing in their start for the next base. These steals are made to fit individuals who possess greater than average physical and mental attributes. Delayed steals were created for above-average baserunners and should be used only by players who fit into an advanced category in baserunning.

Defensive Situations

(Continued from page 8)

from his position toward the catcher, and takes the throw on the inside edge of the grass. On this play it is hardly possible to put out the runner who is going from first base to second base so the second baseman either throws the ball back to the catcher, if the runner on third breaks for home, or he throws to the third baseman to try to pick the runner off that base.

The short throw to the second baseman behind the pitcher. This play works the same as the play just described, except for the spot where the second baseman receives the throw from the catcher.

Quick return throw from the catcher to the pitcher. Occasionally, this play has success in high school circles when there is a fast, anxious, ambitious type of runner on third base. The catcher should return the ball high to the pitcher in order to make the starting flight of the ball resemble a throw toward second base.

Delayed Double Steal With Runners on First Base and Third Base

With runners on first and third, the catcher, after receiving each pitch, should walk up in front of home plate with the ball before he returns it to the pitcher. Should the runner on first base then try a delayed steal, the catcher can make a throw without having a batter in his way. On this type of play the receiver often can bluff the runner on third base back to that base, and then throw through to second base to get that runner for an out.

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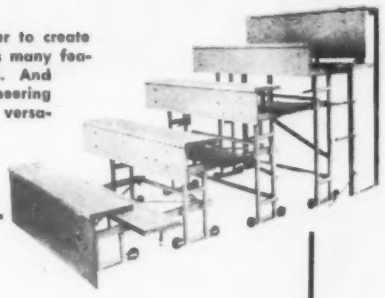

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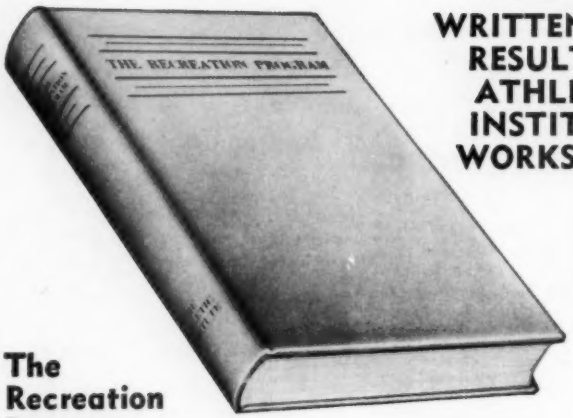

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This book is the tangible outcome of the Second National Workshop on Recreation, held at the Kellogg Center for Continuing Education, Michigan State College, November 28-December 8, 1953. Represents the findings of a group of experienced recreation executives, educators and leaders from a wide variety of agencies, organizations and institutions associated, directly or indirectly, with the professional field of recreation and its component program interests. Brings together in a composite picture, all of the major kinds and forms of recreation activity. Covers program interests and needs in terms of the present as well as an exploration of what the recreation programs could be in the future. The most complete book of its kind ever published.

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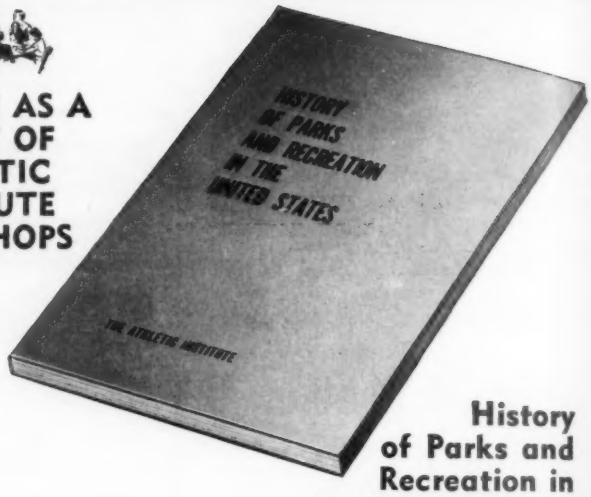

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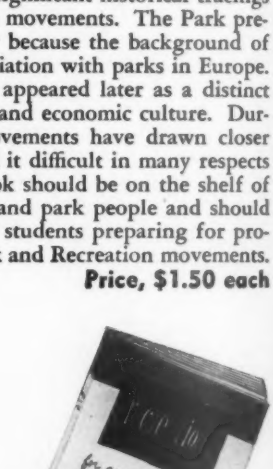

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Contracts Should Be Two-Way Agreements

IN March 1921 the Athletic Journal was founded. One of the reasons for starting the magazine was to lend dignity to the field of coaching. In those days the coach did not hold the respected position in the school or community that he does today.

In every community the coach is looked upon as a leader. He belongs to the civic clubs and his assistance in community projects is eagerly sought. In short, coaching has come to be recognized as a profession and as such the coach takes his place with the professional men of the community—the doctors, dentists, educators, lawyers, and clergymen.

The general acceptance of the value of athletics, the high caliber of the men who have gone into coaching, the formation of coaches associations; in fact, any number of contributing factors have brought about the change to which we refer. If the number of fine magazines in this field has also contributed in this regard, then we are most thankful to have pioneered and "preached the gospel" alone for better than a decade.

The coaching profession has done an admirable job in pointing out the hazards of its work. School administrators are beginning to offer security to the coaching profession by extending long-term contracts.

It has become the general practice for coaches to accept long-term contracts and then ask to be released from the contract in order to accept another position. The request is usually granted by the educational institution because it does not want to stand in the way of a person bettering his position.

The various coaching associations have established codes of ethics which have been of tremendous importance in lending dignity to the entire field of coaching. We feel that these associations should take the lead in impressing upon their members that a contract is a two-way agreement.

Many of our so-called ills in athletics are directly traceable to the pressure on the coach to "win or else." Only through long-term contracts can the coach be protected from the whims of uninformed and overeager alumni and students.

There will be less effort to "get a coach's scalp" when it is realized that his contract has several years to run.

We are afraid that the college presidents will wake up to the fact that a long-term contract affords protection only to the coach and not to the school. This would be too bad because coaching deserves the security and tenure which befits a dignified profession.

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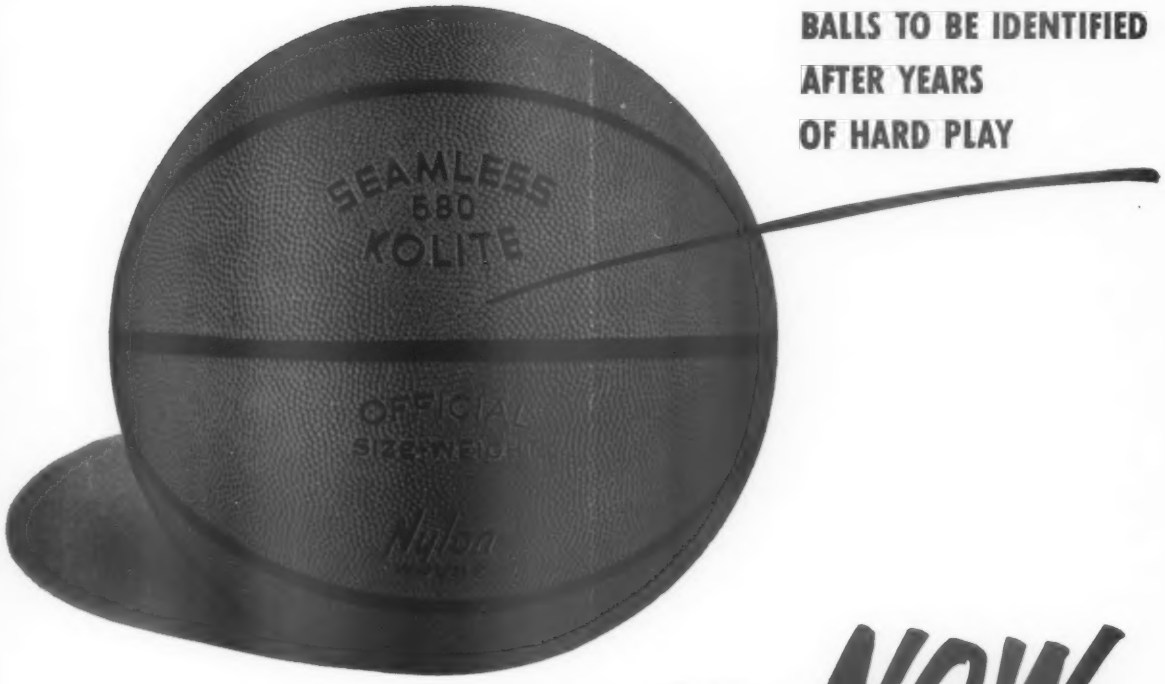

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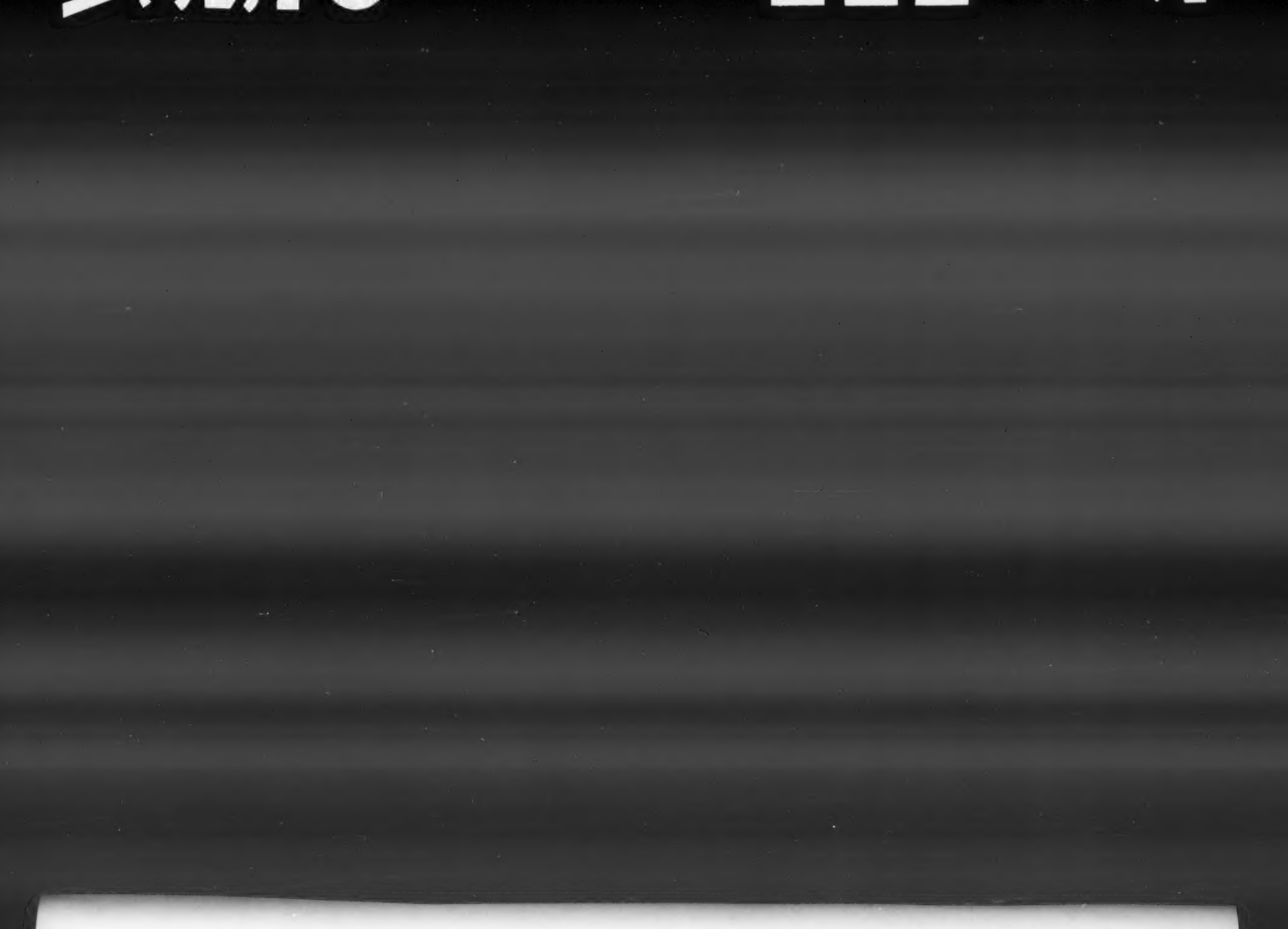
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